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OF THE

Missouri State Medical Association

THE OFFICIAL ORGAN OF THE STATE ASSOCIATION AND COMPONENT SOCIETIES
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E. J. GOODWIN, M. D., EDITOR
3529 Pine St., St. Louis, Mo.

PUBLICATION { W. H. BREUER, M. D., Chairman
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ORIGINAL ARTICLES

VERTIGO: A SYMPTOM FOR THE CONSIDERATION OF THE OTOLOGIST, THE NEUROLOGIST, AND THE INTERNIST*

L. M. SELLERS, M.D.

KANSAS CITY, MO.

In this era of specialties apparently bounded by hard and fast lines, perhaps it is not amiss that we who are specializing in some particular field bear in mind that we are still physicians. There is no hard and fast line at which it may be said that here the special field of the genitourinologist and syphilologist leaves off and that of the otologist begins. The Wassermann reaction has made very clear a relationship that once was, to say the least, very obscure. The internist is daily brought into close association with the laryngologist by the common bond of focal infections. And now we find a new bond linking together two of the specialties. The otologist and the neurologist now have a common stamping ground. And by the same token they are both brought nearer to the internist; or, what is more important, to the general practitioner.

It is now a known fact that every case of true vertigo, with its associated symptoms of nausea, twitching of the eyes, and swaying or falling, one of the commonest and yet one of the most trying and stubborn of symptom complexes with which the physician has heretofore been called upon to deal, is always the result of some affection of the kinetic-static labyrinth of the inner ear, or of its tracts to or through the central nervous system. The affection is not necessarily a primary lesion of these structures. It may be the result of a fracture through the temporal bone, or a ter-

tiary syphilide having its location in the brain stem; it may be a tuberculous inflammation of the basilar meninges; it may be a ruptured sclerotic artery hemorrhaging into and destroying the labyrinth, the result of an old nephritis; or it may be a congestion or mild non-suppurative inflammation of one or both labyrinths, the result respectively of hypertension or of toxemia from a focal infection or an acute infectious disease. So, in meeting such a case the general practitioner should realize that he is a potential otologist and should recognize the field to which it belongs. And the neurologist or otologist having the problem to deal with should immediately attempt to locate definitely the lesion that is causing the disturbance, discover its etiology, determine the prognosis, and proceed on a program of treatment where possible, summoning the aid of the internist when necessary.

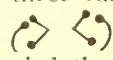
Early diagnosis is of extreme value in these cases. Attempts with calomel and soda to "settle the stomach" of a nauseated, dizzy patient who is suffering from a hemorrhage into the labyrinth are likely to prove unavailing. Prompt efforts to resorb the extravasated blood, and prophylactic measures to prevent its recurrence may result in a speedy relief from the distressing symptoms, the saving of the hearing of the affected ear, and very likely will save the patient an apoplectic seizure at some future time. The early diagnosis of a cerebello-pontile angle tumor which proves to be operable, not only will save a life, but may conceivably prevent an optic atrophy and save our blind institutions a future inmate.

There are two points that should be emphasized here. These are, first, that while the labyrinth is the chief or governing organ of equilibrium, it is not the essential organ, for after bilateral labyrinthine destruction the individual will in time regain a sense of equilibrium. This is due to the remaining arthrodial, tactile and visual senses which by practice will vicariously assume the burden of the destroyed labyrinths. The sense of equilibrium

*N. B. This paper was awarded the prize of \$100 offered for the best paper read before the Jackson County Medical Society by a member in practice ten years or less. With some minor changes it was read at the 64th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 24-26, 1921.

here gained, however, is only for accustomed positions. When any new physical act is attempted the patient finds himself unable to orient himself promptly as he would have been able to do with intact labyrinths, and he suffers an attack of so-called "vestibular-paralysis vertigo," toppling over very promptly. The second point to be emphasized is that we are dealing with true vertigo as distinguished from, (a) attacks of faintness or blackness before the eyes, or sensations as of the ground rising up as seen in cerebral anemia (as in shock or general disability), or in neurasthenia or hysteria. (b) So-called ocular vertigo which is dependent upon a refractive error or to muscle imbalance and which is readily corrected by proper refraction. (c) Lastly, it is to be distinguished from the swaying and falling without vertigo seen where the muscle sense is lost, as in tabes. Every case of such true vertigo is of organic origin and presents a definite symptom complex showing one or more of the elements which we will later describe, and it is by the presence of these elements that we are able to differentiate such a true vertigo arising from an organic lesion from the spurious phenomena just mentioned.

To understand the significance of the symptoms as they appear spontaneously, or produced by the physician in his examination of the patient, a very short review of the anatomy and physiology of the end organ of equilibrium with its afferent tracts should here be undertaken.

The end organ in question, it will be remembered, is lodged within the semicircular canals of the temporal bone which are so arranged that one of the canals lies roughly in the plane of each of the three dimensions. The horizontal canal, as its name indicates, lies almost in the horizontal plane. Actually its plane slopes upward and anteriorly 30° from the horizontal, so that in order to bring it to the horizontal it is necessary to drop the head 30° forward and downward. The vertical canals when the horizontal canal is parallel to the plane of the horizon stand upright, being roughly at right angles to the horizontal canal and to each other. The plane of the posterior one runs inward and forward; that of the anterior one runs inward and backward. Medially they join in a common crus, so that when viewed from above the three canals have the following arrangement:  Within the bony labyrinth is suspended the membranous labyrinth, closely following its outline and about one-third its caliber. Surrounding the membranous labyrinth between it and the bony wall is a fluid, the perilymph. Within the membranous labyrinth is the endolymph. The ends of the membranous canals all open into

a common sac-like reservoir, the utricle, so completing a circuit. It is the movement of this endolymph (either free, or molecularly induced by the movement of the perilymph) that gives us sensations of movement. The movement of the endolymph current in the horizontal canal gives us our sensations of rotary movement in the horizontal plane. That within the two vertical canals acting together gives us our sensations of rotary movement in a frontal plane, while acting separately they tell us of rotary movement in the diagonal planes.

Thus if we turn our head rapidly to the right, the endolymph and the small crystalline particles, or otoliths, suspended in it within the horizontal canals, lag behind, obeying the laws of inertia. It is this lagging behind which tells us that our head revolved to the right. Therefore anything which will cause the endolymph to flow to the left will give us the impression of revolving to the right. It is by setting up such a current either by turning the patient in the Barany chair or by douching the ear with hot or cold water, that the otologist determines the activity of the canals and their tracts. Do we drop our head suddenly over toward our right shoulder, the endolymph in the vertical canals lags behind and we have the sensation of the revolving in a frontal plane to the right. So anything which will cause the endolymph in both vertical canals to flow to the left will give us the impression of toppling to the right. Endolymph movements within the utricle are thought to give us sensations of linear movements laterally; while endolymph movement within the saccule (a pouch in communication with both the utricle and the cochlear or auditory portion of the labyrinth) are thought to give us sensations of linear movements forward and backward. But of the exact mechanism or of the tracts here involved we as yet know nothing so we will not consider them further.

One end of each membranous canal is dilated to form an ampulla, just as it enters the utricle, within which is the crista containing the nerve ending that receives and transmits the sensations arising within that particular canal. It is the anterior end of the horizontal canals and the non-united or outer ends of the vertical canals which are ampullate. When the current flows toward the ampulla in the horizontal canal, twice as strong a reaction is produced as when the current is away from it.

Thus when the current in the horizontal canals of both ears is to the right, two-thirds of the resultant reaction is produced by the left horizontal canal because here the current is toward the ampulla, and one-third is produced by the right horizontal canal where the current is away from the ampulla. In the ver-

tical canals the opposite is true. Current away from the ampullæ is twice as potent as current toward them. Thus, when the current is to the right in the vertical canals, two-thirds of the reaction is due to the left canals and one-third to the right canals, thus agreeing with the reactions produced by the current in the same direction in the horizontal canals.

In normal health these currents give rise to tonic influences from the two labyrinths which constantly are playing against one another so that a condition of equilibrium results. If the impulses from one side are suddenly stimulated or suppressed, an upset of this equilibrium occurs and the symptom-complex with which this paper has to deal makes its appearance. In the case of destruction of one labyrinth the impulses which result from currents to and from the ampullæ of the normal labyrinth, as we have just seen, are not equal, being in the ratio of 2:1, and it is this that is directly responsible for the upset in equilibrium when the neutralizing impulses from the other labyrinth are removed by its destruction or blocking of its pathway to the brain. However the impulses from both sides of the healthy cristæ very soon reach the ratio of 1:1. Compensation is then said to have occurred, and the spontaneous equilibratory symptoms disappear. This fact is important and must be borne in mind in examining the patient for spontaneous symptoms.

The same endolymph that is found in the semicircular canals also surrounds the nerve endings of the auditory portion of the labyrinth in the cochlea as there is free communication between them, by way of the saccule, so that anything that affects the end organ of equilibrium also affects the hearing; except in the condition known as circumscribed labyrinthitis where by reason of a long continued inflammatory process the lesion is walled off. The nerve fibers from the cochlea and the semicircular canals run as a single nerve trunk (the VIII cranial or auditory nerve) to the medulla, after entering which they separate taking widely divergent tracts.

Let us now, for the purpose of bringing out the points of the diagnosis a little more clearly, suppose that we have a patient who comes complaining of nausea, dizziness, and staggering. Let us also suppose that several days have elapsed since the onset of his trouble, so that the case may be developed in order to give us a fairly typical picture for the sake of clarity in this paper.

If he tells us that the onset was sudden and severe, reaching its climax within a very short while, and that since then it has been improving a little, we immediately suspect the internal ear as being the source of the trouble, because this is typical of the onset of laby-

rinthine disturbances. If he tells us that it comes on in short spasmodic attacks while he has a discharging ear, and brought on by or independent of jarring movements, we may even suspect that the inflammation is confined to a circumscribed area (circumscribed labyrinthitis). If, however, he tells us that the onset has been slow and the trouble is gradually growing worse we may suspect that the lesion is extra labyrinthine, involving either the VIII nerve trunk or one or more of its tracts within the brain.

We next ask if he has become deaf in either or both ears since the attack began. Labyrinthine disturbances always produce impairment of hearing in the ear affected. Central lesions produce deafness only when the acoustic fibers are involved. The same is true of tinitis or noises in the ear.

Headache is usually absent in labyrinthine disturbances, unless produced by suppuration or by accompanying systemic disturbances, while it is usually present in central lesions.

If he tells us that his vision is becoming dim, let us suspect a central lesion, as dimness of vision is common in such lesions, while in labyrinthine disturbances it comes rarely except with a toxic nephritis. The ophthalmoscopic examination of the fundus, the urinalysis, and the blood pressure will here be called upon in making the diagnosis.

If he tells us that he has a diplopia or double vision, let us be sure his lesion is central, as such a symptom never occurs in purely labyrinthine disturbances.

Our first step in the examination of the patient should be of the ears. First notice if there be suppuration in either ear. Such a condition is strongly suggestive. If such a condition be present, place the tragus of the affected ear over the external meatus and press firmly, thus compressing the air so confined in the external auditory canal. If this aggravates the symptoms, producing profound vertigo, be sure that you have a fistula from the middle ear into the labyrinth, and the fistula test is said to be positive. A negative fistula test does not always mean the absence of a fistula as the suppuration may have destroyed the labyrinth, removing the possibility of its responding to such stimulation, and we must search further. Therefore we will test the hearing of both ears. If the lesion be confined to the labyrinth or if the acoustic fibers of the VIII nerve be involved, there will be an VIII nerve deafness of the affected side. The simplest test for this is to strike a tuning fork of 12 vibrations and immediately press the handle firmly against the mastoid. Failure to hear it, or hearing it for a time shorter than normal, indicates a lesion of the organ of Corti, or the acoustic fibers of the VIII nerve.

Let us now examine his eyes for nystagmus. This is a rhythmic oscillation of the eyes, having two components. The eyes move slowly in one direction and come back with a jerk. The slow component is a reflex coming entirely from the hair cells within the ampullæ or from their afferent tracts, while the quick jerk or recovery is due to corrective impulses from the cerebral cortex. Unfortunately the nystagmus has been misnamed; it takes its name from the quick or cerebral component. Thus if the eyes move slowly to the left and return to the right with a quick jerk, it is known as nystagmus to the right.

We must here revert briefly to the anatomy of the tracts leading from the ampullæ. After entering the medulla, not only do the cochlear and the vestibular fibers separate, but as has been brought out by I. H. Jones, the fibers from the horizontal canals pursue different courses from those from the vertical canals. Furthermore the fibers from each canal having to do with nystagmus follow different courses from those having to do with vertigo, falling and past-pointing, the former running via the medulla and pons to the eye muscle nuclei, the latter via the cerebellum to the temporal lobe of the opposite side. The tract from the horizontal canal goes to Deiters' nucleus in the medulla where it divides into two branches. One of these branches immediately enters the posterior-longitudinal bundle. Within this bundle it then runs anteriorly sending fibers to the nuclei of the nerves supplying the adductor and the abductor muscles of the eyes. It is this tract which supplies the slow component of the nystagmus which results from the stimulation of the horizontal canals and which is always horizontal. The quick component, as mentioned before, is supplied by a motor impulse from the cerebral cortex. The other branch runs through the inferior cerebellar peduncle to the vestibular nuclei of the cerebellum, makes its connections with the cerebellar cortex and thence through the superior cerebellar peduncle and the cerebral crura to the temporal lobe of the opposite side. This tract has to do with the vertigo and its associated symptoms of past-pointing and falling.

The tract from the vertical canals runs alongside the posterior-longitudinal bundle to the pons where it also divides, its nystagmus branch running via the posterior-longitudinal bundle to the nuclei innervating the rotators of the eyes, supplying the slow component of the nystagmus from the vertical canals, and which is always rotary. Its other branch runs to the cerebellar nuclei via the middle cerebellar peduncle whence it takes the same course to the cerebrum as the tract from the horizontal canal of the same side.

To examine for nystagmus here, have the patient look straight ahead at a distant object. If there be none, have him look to the right then to the left, then upward and downward, as this will many times bring out a latent nystagmus. If there is present a horizontal nystagmus it may be due to a labyrinthine lesion, as such is fairly common. If deafness is present in one ear and the nystagmus be toward (i. e., its slow component away from) that side, the lesion is irritative, i. e., early, whether it be labyrinthine or central. If away from that side it is destructive.

If the nystagmus be rotary the evidence is slightly more in favor of a labyrinthine lesion, as this is the usual type of nystagmus found here, particularly if it be combined with a horizontal nystagmus.

If there be any vertical nystagmus present, we may be sure we are dealing with a central lesion as it never occurs in a labyrinthine lesion.

Inquiries regarding the vertigo and the falling or swaying should now be made. If the vertigo is systematized, i. e., if external objects seem to move always in one particular direction about the patient, or if the patient himself always revolves in one particular direction, we have evidence presumptive that the lesion is within the labyrinth as such is more common in labyrinthine than in central lesions. The evidence is made stronger if the vertigo is in the opposite direction of the slow component of the nystagmus. Be the lesion either central or peripheral, the vertigo is toward (i. e., external objects revolve toward) the affected side in irritative or early lesions, and away from the affected side in destructive or late lesions. If the lesion be central it may be in (1) the inferior or middle cerebellar peduncle, (2) the cerebellar nuclei, (3) the cerebellar cortex, (4) the superior cerebellar peduncle, (5) the upper pons or the cerebral crura, or (6) the cerebral cortex.

If the patient sways or falls, it is usually in the direction of the vertigo and the lesion may be located as in vertigo. If there be no vertigo accompanying the falling, look elsewhere than the labyrinth or the vestibular tract for the lesion, for here we have a symptom typical of spinal cord syphilis. To distinguish between a labyrinthine and a vestibular tract lesion, remember that in labyrinthine lesions the direction of falling varies with the position of the head. Thus, assume that the patient on standing erect with the face to the front falls to the right. In a labyrinthine lesion if he turns his head to the right, he will fall backward; if to the left he will fall forward, as the position of the end organs is changed. This effect is never shown in a central lesion.

We must now examine our patient for a sign about which he will voluntarily tell us nothing, as he probably never has had occasion to notice it. A normal person should be able to touch a point in front of him with the outstretched index finger, close the eyes, raise the arm above the head, and return the finger to the point touched without opening the eyes. This he should be able to do repeatedly. If the arm should, on attempting to return the finger to the point touched, move to one side or the other any appreciable distance, he is said to have past-pointed.

When such past-pointing is due to a lesion of the labyrinth or the VIII nerve itself, both arms past-point in the same direction, and in the same direction as the slow component of the nystagmus, and the determination as to whether the lesion is irritative or destructive is dependent on the same factors as mentioned for nystagmus and vertigo. The hearing of the ear on the side affected is decreased or abolished.

There is one central lesion that produces precisely this picture and unless further examination is made, the lesion is very apt to be pronounced a peripheral one. This is a lesion of the cerebello-pontile angle pressing on the VIII nerve. However, in such a lesion there are also symptoms of intracranial pressure, among which are disturbances in the responses from the vertical canals of the opposite side. This picture of a mixed lesion, peripheral on one side and central on the other, has been shown by Jones to be typical of a cerebello-pontile angle lesion.

If the past-pointing is crossed, i. e., both arms outward, or both arms inward, the lesion is cerebellar.

If only one arm past-points either outward or inward the lesion is located in either the outward or the inward pointing center of the cerebellar hemisphere of the same side.

Finally, if the patient is able to permit it, test the pelvic girdle reaction. Have him stand in front of you, with his feet together and his eyes closed, as though you were going to do a Rhomberg. Rest your hands on his shoulders. Suddenly shove him to the right, then to the left; then push him backward, and finally pull him toward you, never, however, letting go your hold on his shoulders. His pelvis should sway outward in a direction opposite to the direction in which you move his shoulders. If he falls over with his pelvis rigid, you are facing a lesion of the vermis of the cerebellum, and in the presence of this lesion the patient usually staggers forward.

The examiner should now be in a position—if he be dealing with a truly typical case—to diagnosticate between a lesion of the central tracts and one of the labyrinths. If it be a

central lesion the case is obviously one for the neurological surgeon. If it is peripheral, he should remember that such a lesion is usually secondary, and the primary cause—nephritis, syphilis, focal infection, or intestinal toxemia—should be sought for and remedied. If he finds none of these symptoms or signs, let him not be too prone to pronounce the case one of functional neurosis, as he should remember that early central lesions or compensated peripheral lesions may show such signs and symptoms only as are brought out by the detailed examination of each labyrinth and its tracts.

Further detailed examination in an effort to locate definitely the lesion falls rightly entirely within the field of the neuro-otologist, and is without the scope of this paper, whose aim has been to bring to the attention of our brothers in practice a more intimate acquaintance with these seldom recognized causes of a troublesome symptom.

Before summarizing the substance of this paper, I would like to present very briefly two cases illustrating typically a peripheral and a central lesion:

CASE 1.—Mr. B., aged 32, was brought to me by a general practitioner to find out whether or not he had a foreign body in his eustachian tube. Mr. B. had been a patient of this doctor's for several years during which time he had been subject to attacks of nausea and vomiting brought on by partaking of rich heavy foods—a typical gastric disturbance. Three weeks previously he had apparently had such an attack. This time he was confined to his bed for three days because "he was so sick he was dizzy." In fact at the onset, which was sudden, he had fallen to the left against the side of a house. The vomiting had been severe. After his vertigo and nausea had subsided sufficiently to permit him to be up and around he noticed that he was deaf in his right ear, and his physician thought probably a foreign body had been forced into his eustachian tube by the severe vomiting. Upon examination he was found to have a total perception deafness in the right ear. There was no spontaneous vertigo, falling, past-pointing, or nystagmus, compensation having occurred. On stimulation of the semicircular canals by rotation in the Barany chair, and douching the ears with cold water, no responses were elicited from the right labyrinth, while the left labyrinth responded normally. Ophthalmoscopic examination of the fundus showed inordinately tortuous sclerotic arteries, with a perivascular infiltration. The aorta was widened. The Wassermann was 4 plus and the urine was negative. A diagnosis of hemorrhagic labyrinthitis was made. He was put to bed, given pilocarpine sweats in an effort to resorb the clot and specific treatment started. The improvement in his hearing was little or none as severe damage had been done in the time that had elapsed.

CASE 2.—Mr. Reuben W., aged 55, an ex-police-man. Referred by Doctor Burkhart and Doctor Teachenor on April 9, 1921.

Complaints of headache, mental depression, dizziness, nausea, and occasional buzzing in the ears.

Thirteen years ago, while attempting to arrest a man, he was struck in the forehead with a pair of brass knucks. He was stunned but not unconscious.

There was bleeding from the right ear for eighteen hours following the injury. Since then he has been unable to work. He is very dull and apathetic; is slow to answer questions; and suffers with severe frontal and vertical headaches. He has frequent attacks of vertigo with nausea and vomiting. He says the vertigo is not systematized; that he has never fallen, but that he staggers at times. He has occasional buzzing in the ears.

His past history and family history are negative.

The examination of the throat, nose and ears is negative except for a fibrotic scarring and infiltration of the right tympanic membrane. The eye ground examination shows full, dilated veins.

The hearing tests are difficult to perform because of the slowness of response on the part of the patient. The Weber appeared negative. The left ear was negative while the right ear showed a slight decrease in bone conduction and a slight lowering of the upper tone limit (Galton, 1.5).

He showed a spontaneous nystagmus in both eyes, rotary when looking to the right and horizontal when looking to the left.

He located points with arms and legs fairly well.

His pelvis was as rigid as a board on attempting to overthrow him, especially to the right.

On turning, his nystagmus was shortened in duration from stimulation of all canals. His past-pointing was much reduced for both arms, there being none at all for both arms inward. His vertigo was decidedly subnormal but headache was produced.

On douching, the right ear was slower to respond than the left ear. The nystagmus was of good amplitude and correct in direction on both sides in all canals. The vertigo was distinctly subnormal with no nausea. The past-pointing was almost nil with both arms, especially for inward pointing.

Thus we find in this case:

1. That both labyrinths are functioning. The right is impaired somewhat, but this is probably due to the old injury and is causing no present symptoms.

2. The medulla and the pons are clear, as the nystagmus and to some degree the vertiginous responses from all canals do get through.

3. The past-pointing (particularly for both arms inward) and the vertigo are distinctly subnormal.

4. The pelvis is rigid.

On these grounds a diagnosis was made of a cortical cerebellar lesion (most probably pressure or a slight degree of infiltration) involving especially the vermis and the biventral lobes.

A radiograph was then taken which shows a large cyst-like area in the posterior fossa, the skull overlying this area being partially eroded. The tentorium has been lifted so that the lateral sinus slopes downward and forward 45°. This is probably an intradural cyst pressing upon the posterior inferior surface of the cerebellum in the region of the vermis and biventral lobes.

In this case the key to the diagnosis lay in the hands of any man who would have tested his pelvic girdle reaction. The subsequent examination of the tracts only confirm this. The only point of confusion in this case lay in the involvement of the right labyrinth. Although he had been examined repeatedly no one before he came under the observation of Dr. Burkhart and Dr. Teachenor had thought to examine the equilibratory apparatus. Subtentorial decompression with attempted removal of the cyst was advised, but operation was refused. The patient is now an inmate of the sanitarium here at St. Joseph.

SUMMARY

1. All cases of true vertigo with associated symptoms are due to lesions of the semicircular canals, or their tracts to or within the central nervous system.

2. The lesion is in most cases (intra-cranial new growths excepted) secondary to some general systemic affection.

3. When located within the labyrinth or involving the VIII nerve trunk, all responses from that side are similarly affected; e. g., hearing is diminished; the vertigo, falling, and nystagmus are toward, and the past-pointing away from the affected side in irritative lesions, and vice versa in destructive lesions.

4. In vestibular lesions, absence of the spontaneous equilibratory symptoms at the time of examination is very likely, as compensation quickly occurs.

5. The presence of only part of these symptoms is nearly always due to a central lesion as it is only after the break-up of the pathways that such can happen.

430 Argyle Bldg.

SURGERY OF THE GALL-BLADDER*

LOUIS RASSIEUR, M.D.

From the Surgical Service of St. Mary's Infirmary, St. Louis University School of Medicine.

ST. LOUIS

From January, 1910, to October, 1921, eighty-three patients have been operated upon in my service by me at St. Mary's Infirmary for disease of the gall-bladder or of the biliary passages. Sixty-five of the patients were females. Four of the sixty-five had never been married. One case occurred during the second decade of life, fourteen during the third, fourteen during the fourth, nineteen during the fifth, nineteen during the sixth, twelve during the seventh, and four during the eighth decade. Five cases had had their appendix removed some time before. One had had an operation for loose kidney. Nine cases had concurrent appendix disease. Two had a large hernia. Four had disease of the female organs. These fifteen cases had their concurrent diseases attended to at the gall-bladder operation. One of these fifteen died.

Some of the patients had no previous history of gall-bladder trouble, while one suffered from gall-bladder disturbance for eight years, another thirteen years and the longest period was twenty-five years. Only nine cases gave a history of jaundice. Two complained of most pain over the appendix. The most frequent local signs of acute gall-bladder trouble were

*Read before the St. Louis Medical Society, October 11, 1921.

sensitiveness on palpation in the gall-bladder region. Sometimes the gall-bladder could be made out on palpation. This was especially true where the stone was in the cystic duct. Symptoms of indigestion, as vomiting, sour stomach, belching, pain passing up under the sternum then to the shoulder blades especially the right, and also constipation, were present. The most frequent local signs of chronic gall-bladder disease were signs of indigestion with normal or nearly normal stomach, duodenal and appendix findings. Pain was transmitted to the epigastrium, especially when there was a stone in the common duct. Marked loss of weight was observed in those cases associated with "Charcot's intermittent fever."

Four patients had been wrongly diagnosed ulcer of the stomach and treated for that before coming to our institution. Four cases with adhesions of the omentum to an old appendectomy scar gave symptoms simulating gall-bladder disease.

Gall-stones were found forty-four times in the gall-bladder, eleven times in the cystic duct—and one of these cases died—six times in the common duct—and two of these died. The one had a carcinoma of the common duct at the papilla, with stones also in the cystic duct and in the gall-bladder.

The autopsy showed an adenocarcinoma with metastases in the liver. The other case had been so run down by Charcot's intermittent fever that the common duct operation as well as the cholecystectomy was made with novocain used locally. There was one case of common duct carcinoma at the papilla that was not complicated by gall-stones. In this case a cholecystjejunostomy (suture method) was made. This patient died six months after leaving the hospital with symptoms of cerebral metastasis. Seven times only a single stone was found, namely, four times in the gall-bladder, two times in the cystic duct, and one time in the common duct. Two times gall-stones seemingly recurred after cholecystostomy in the gall-bladder, being found again at a second operation. Two times gall-stones were found after cholecystectomy in the common duct at a second operation. One of these after the first operation (cholecystectomy) drained very many soft bilirubin stones for a time from the common duct. This case later developed a tumor of the retroperitoneal lymph nodes which has the histological structure of a lymphosarcoma. X-ray treatment has done no perceptible good. She has a chylous ascites which at present is only benefited by paracentesis.

Cholecystostomy was made forty times. Four of these cases died. One had a cancer of the common duct and another was over

seventy years old and weak at the time of the operation. Cholecystectomy was done forty-three times. Five of these cases died. One was run down from a long period from Charcot's fever and common duct stone, two had empyema of the gall-bladder, one had gangrene of the gall-bladder, and one was complicated by hyperthyroidism.

Ether, preceded one-half hour before the operation by a hypodermic injection of morphine sulphate, gr. $\frac{1}{4}$, and atropine sulphate, gr. $\frac{1}{150}$, was the anesthetic used in all cases excepting two. Here the patients were extremely weak, and cholecystectomy and removal of stones from the common duct was done in one case, and cholecystectomy done in the other case. In these cases the operation was made by the local use of 1 per cent. aqueous solution of novocain preceded by an injection of morphine sulphate, gr. $\frac{1}{4}$, and atropine sulphate, gr. $\frac{1}{150}$, one-half hour before the operation.

More operations were made in the present year than in any period of equal length previous to now. No operations other than cholecystectomy have been made this year. Twenty-one cholecystectomies were made in all, thirteen times for symptoms due to adhesions of the gall-bladder to the duodenum, one time with choledochotomy for common duct stones, three times for stones solely in the gall-bladder, twice for acute hydrops with stones in the gall-bladder and an impacted stone in the cystic duct, once for empyema of the gall-bladder with stones, once for an acute phlegmonous process of the gall-bladder wall without stones. In all except one of these cases any other organ found diseased was attended to surgically at the same sitting; as, for example, appendectomy, shortening of the round ligaments, hysterectomy for fibroid of the uterus, perineorrhaphy, varicose veins, and bunion operations, were made. There were no deaths in the series of operations made this year for diseases of the gall-bladder and the biliary passages and their concurrent conditions.

I attribute these results to the following: (1) A better understanding of the diagnostic symptoms of early disease of the gall-bladder and of the biliary passages. (2) A better knowledge of the principles underlying the surgical treatment. Formerly it was my custom to make cholecystostomy. A vertical incision was made in the rectus muscle directly over the gall-bladder. If the gall-bladder was irreparably injured by disease, then only would I do a cholecystectomy. Through this incision cholecystectomy is very difficult and is attended by grave dangers, as injury to the common duct and hemorrhage, on account of

the difficulty of ligating the cystic artery from this opening. At present an incision at least long enough to allow the use of both hands and to turn out the liver is made starting at the right side of the xiphoid cartilage and running downward and sufficiently outward to avoid the navel so as to facilitate the closure of the wound by suture. An incision so made is directly over the bile ducts and the cystic artery. This permits the exposure of the ducts and the artery before they are cut and ligated, thereby making it almost impossible to injure the common duct or let the artery slip. The cystic duct is grasped between the index finger and the thumb of the left hand and drawn away from the liver and the common duct. Then the artery forceps are applied with the right hand and the cystic duct is divided. Turning the liver out of the wound and traction on the fundus of the gall-bladder made by an assistant holding it with an artery forceps, makes this procedure easy. The divided cystic duct and the pelvic end of the gall-bladder serve admirably as tractors when clamped by an ordinary artery forceps to bring the cystic artery into view just before it is ligated and divided. The common and the hepatic ducts may now be easily inspected. The gall-bladder is more readily removed from the cystic duct outward through this incision. This method does away with the use of cushions or wedges below the back or the use of a special table or the packing of gauze between the diaphragm and the convex surface of the liver in order to bring the ducts and the cystic artery into view. A drain consisting of $\frac{1}{2}$ cm. rubber tubing or rubber dam was placed near the divided cystic duct. It was removed not later than five days after the operation. The following after-treatment seemed to make the patient more comfortable and to hasten the convalescence: (a) Hypodermoclysis of 500 c.c. of physiologic saline solution in the outside of the thigh three times in twenty-four hours. (b) Continuous drop saline enema. (c) Water was given by mouth if the patient did not vomit. When the patient became nauseated the stomach was lavaged as often as necessary with a gallon of tap water containing two ounces of sodium bicarbonate. (d) When the temperature rose to a hundred degrees or over, ice caps were applied to the head. (e) A heart stimulant, as digitalin, drops ten hypodermically, was given only when needed. (f) Enough morphine sulphate was administered hypodermically to give rest and to remove all pain and anxiety.

RESULTS OF THE TREATMENT

An effort was made to follow up the cases. Letters were sent. There were thirty-four

replies in all. Fourteen letters were returned because the patients could not be found owing to change of address. The remainder replied as follows: ten cholecystectomy cases reported that they were well. Five cholecystostomies reported being well. Two cholecystostomies reported themselves as improved. It was reported that the cholecystojejunostomy case had been improved by the operation. Two cholecystectomies were unimproved.

CONCLUSION

1. Gall-stones are more frequent in females than in males.
2. Gall-stones are most frequently found in the gall-bladder but may be found in the cystic or other biliary ducts.
3. Icterus is not a common sign of gall-stones.
4. The most frequent sign of gall-bladder disease is indigestion.
5. Cancer may complicate gall-stones in the cancer age.
6. Cholecystostomy does not prevent a recurrence of gall-stones in the gall-bladder.
7. Gall-stones may form in the common duct even after cholecystectomy.
8. All cases of gall-bladder disease should be early referred to the surgeon, since they are the result of infection.
9. Cholecystectomy is the operation of choice because it does away with the focus of infection and the mortality and the morbidity are at least no greater than after cholecystostomy.
10. When a pus gall-bladder has ruptured and formed an abscess then cholecystostomy is of value, especially if cholecystectomy is contemplated at a later stage.
11. Ether preceded by a hypodermic injection of morphin and atropin is a safe anesthetic; however, in very grave cases, novocain used locally will serve very well.

University Club Building.

DIFFERENTIATION AND TREATMENT OF CARCINOMA AND SARCOMA OF THE COLON*

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Embodied in this report are seven cases of carcinoma and two of sarcoma of the colon, classified as follows:

Carcinoma: Cecum, 1; ascending colon, 1; transverse colon, 2; splenic flexure, 1; sigmoid, 2.

*Read at the 64th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 24-26, 1921.

Sarcoma: Ascending colon, 1; transverse colon, 1.

As the series covers each portion of the colon the cases will be considered in order of their anatomical location from cecum to recto-sigmoid juncture.

Cecum.—Case 1.—Mr. A. F., aged 62, consulted me in 1914 complaining of progressive anemia, sickness at stomach, weakness and constipation. The anemia and weakness gave a peculiar, lemon tint to the skin and a cachexia almost resembling a pernicious anemia. There was no history of bloody stools. Blood count showed a secondary anemia. A suggestive mass and rigidity could be felt in the region of the cecum. Examination was otherwise negative. A tentative diagnosis of carcinoma of the cecum was made. At operation a carcinomatous mass involving the cecum and encroaching upon the ileo-cecal valve was found. There were one or two palpable lymph glands. The terminal six inches of the ileum and beginning third of the ascending colon were resected and a lateral anastomosis done between the ileum and middle third of the ascending colon. The patient lived three years, finally dying of carcinoma of the liver. His obstruction was entirely relieved and he gained weight and strength and had perfect digestive function till six months before death when his feet began to swell, the abdominal wall veins distended, and a palpable mass appeared in the liver.

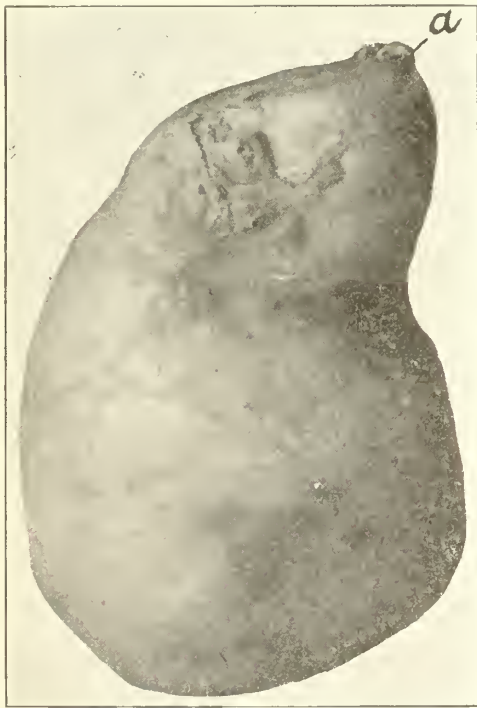


Fig. 1. Retroperitoneal cyst. Showing pear-shaped contour with narrow base studded with nodules which are adenocarcinoma. The tip (a) was connected with an adenocarcinoma of the ascending colon.

Ascending Colon.—Case 2.—Mr. R., aged 65, Parrell, Mo., was brought to me with a diagnosis of acute perforated appendicitis with abscess. He had been perfectly well until one week previous, except for occasional abdominal discomfort referred more particularly to the right lower quadrant. At the time

of onset he was taken with epigastric pain, nausea, vomiting and constipation with temperature ranging from 100 to 101 degrees F. He did not call a physician until several days after the attack. The physician found a mass in the right lower quadrant, thought it to be a perforated appendix and brought

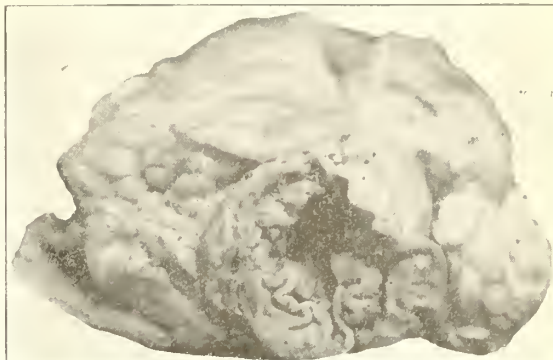


Fig. 2. Adenocarcinoma of the transverse colon, showing annular constriction which had caused almost complete obstruction.

him to the hospital. On admission the following symptoms were found: temperature 101 degrees F., P. 116, walled-off adherent mass the size of a grape-fruit in the right lower quadrant over which there was marked tenderness and rigidity; leucocytosis 15,000. I confirmed the physician's diagnosis and on opening him and expecting to find a walled-off appendicolic abscess, found instead a retro-peritoneal mass the size of a grape-fruit located about the middle of the ascending colon and pushing it forward and downward. This proved to be a large, pear-shaped retro-peritoneal cyst (Fig. 1) with the stem end very hard and connected with an indurated mass in the posterior intestinal wall. The bowel was not obstructed and on removal of the cyst fell back in its former position. The induration of the posterior bowel wall could be easily felt and there were several enlarged retro-peritoneal lymph glands. I didn't feel there was anything to be gained by resection because he had no obstruction and there was no way of heading off the metastases which were palpably numerous. After operation his acute symptoms promptly cleared up and he remained in excellent health until three years later when he developed a recurrence and died after another operation elsewhere. The tumor which I removed was a retro-peritoneal cyst arising in an adeno-carcinoma of the large intestine. The temperature is not peculiar as it so often accompanies these tumors of the cecum and ascending colon. Mesentery cysts according to Erickner are usually attached to the ascending colon.

Case 3.—Mrs. C. R., aged 21, consulted me September 8, 1913, complaining of soreness in the right lower quadrant, loss of weight and strength, anemia, bloody stools, and intermittent constipation. Family history, negative. Personal history good until onset of present illness which commenced one year previous with a slight prickly sensation in the right lumbar region accompanied by more or less flatulence. This continued two to three weeks and ceased. About two months after the onset small amounts of blood appeared in the stools, occurring off and on in gradually increasing amounts. She lost weight and became anemic. A thorough examination was advised but delayed on account of an existing pregnancy. A miscarriage occurred in October, two months later. She gained for a few weeks when blood again appeared in the stools, a tablespoonful to a cupful at each movement. Obstruction gradu-

ally increased. She had an evening temperature of 101 to 101.5 degrees F., extreme pain in the right lumbar region about an hour before each bowel movement. Hb. 55 per cent. Temp. 101 F. Pulse 120. Blood pressure 95 mm. of mercury. Blood smear showed pale corpuscles and many abnormal r. b. c. and a moderate number of poikilocytes, but no other abnormalities in r. b. c. or w. b. c.; urine negative. High grade of secondary anemia present.

Heart.—Blowing, systolic murmur over the mitral area, not transmitted—hemic in character.

Lungs.—Negative.

Abdomen.—Tenderness in right lower quadrant from right lumbar region extending downward to right iliac region.

Gynecological.—Uterus and left appendage normal. A mass the size of an orange could be palpated in the region of the right ovary but not connected with it. Sigmoidoscopy, negative.



Fig. 3. Same as Fig. 2 split in the long axis of the bowel, showing the type of growth from the mucous membrane.

Exploratory Operation.—Tumor shown in Fig. 2 found midway between hepatic flexure and caput coli. The weight of the tumor had caused a marked prolapse of the ascending colon carrying this portion of the bowel to the region of the right ovary. This accounted for a mass being felt by bimanual rather than by abdominal palpation. A wide resection and an end to end anastomosis was the procedure chosen. No involvement of the intestinal wall beyond the growth and no involved lymph glands were found.

Post-Operative.—Uninterrupted recovery. Gain of 48 pounds in seven years' time. No sign of recurrence. No return of symptoms. Hb. at present 95 per cent. Has given birth to three children and is in excellent health seven years after operation. She developed a marked constipation three years ago and becoming frightened over the thought of a recurrence she submitted to an exploratory operation. No sign of recurrence was present. Line of union perfect. The constipation with pain was due to a small

loop of ileum which was twisted and attached to the abdominal wall. This was detached and she has had no subsequent trouble.

Pathological Report.—Tumor (Fig. 3) had a firm, sessile base of the consistency of gristle supporting a very vascular papillomatous outgrowth which filled the intestinal lumen almost entirely, readily explaining the bloody stools and the difficulty of obtaining a movement except by using purgative oils, which by their irritating effect on a soft vascular surface caused a greater amount of blood to appear after their use than at any other time. The whole mass arose from a depression in the intestinal wall equidistant from the attachment of the mesentery on either side, probably at the base of an old ulcer (Fig. 2a).

Microscopic.—As illustrated in the microphotograph (Fig. 4) the tumor showed a rich network of large spindle cells, the section from the base containing closely packed cells and very few blood vessels. Sections from the papillomatous outgrowth showed a loose mesh work of large spindle cells and giant cells abundantly supplied with blood vessels.

Diagnosis.—Large spindle cell and giant cell sarcoma.



Fig. 4. Large spindle cell sarcoma of the ascending colon growing from the mucous membrane, showing a firm sessile base (a) composed of spindle cells, giant cells, connective tissue, and a more spongy, vascular, papillomatous outgrowth (b) extending into the lumen of the gut, the slightest manipulation causing this to bleed profusely.

Transverse Colon.—Case 4.—Boy, aged 3, presented on examination a large, tender, abdominal mass extending from the umbilicus to the symphysis, of three weeks' duration so far as the parents had noticed. Temperature 102 degrees F. Pulse 140.

Exploratory operation showed a tumor, very vascular and friable incorporated with the major part of the transverse colon with metastases in the omentum and mesentery. The tumor had "run wild" over the entire abdominal cavity. A section was taken for microscopic examination and the abdomen closed.

Microscopic Diagnosis.—Small round cell sarcoma.

Case 5.—Miss A. S., aged 56, gave a history of gradually increasing constipation lasting over a year. Finally the use of large doses of castor oil with irrigations and hot applications to the abdomen were

necessary to move her bowels. She had dieted herself and had lost about 30 pounds in weight but otherwise looked fairly good. She was tender and slightly full in the epigastrium and palpation over the ascending colon showed marked borborygmus. The X-ray showed an obstruction in the transverse colon. Operation revealed an annular carcinoma of the

Case 6.—Mrs. M. L., aged 59, submitted to an exploratory operation for gall-stones, or adhesions around the pylorus and at operation the transverse colon was adherent to the omentum and pyloric end of the stomach by what appeared to be an inflammatory mass, which, on separation, proved to be an annular carcinoma of the transverse colon. A wide resection was done and an end-to-end anastomosis. The patient has been without symptoms two years. A letter recently states that she is having some abdominal discomfort. Whether this is due to recurrence I am unable to state.

Splenic Flexure.—Case 7.—Miss C., aged 56, was brought to me for acute intestinal obstruction. At exploration I found a mass in the splenic flexure of the colon with metastases to the lymph glands. A colostomy of the transverse colon was performed, but she died four days later from renal insufficiency.

Sigmoid.—Case 8.—Acute intestinal obstruction, aged 66, died after sigmoidostomy from renal insufficiency and toxemia.

Case 9.—Mrs. A. F. G., Jewess, aged 64, was brought in on account of severe abdominal cramps with constipation, sometimes a week going by without a bowel movement. She was very thin. Visible peristalsis could easily be seen. She was very much distended. After several enemas over a two-day period and a teaspoonful of castor oil every hour for two days she had three very good liquid stools but still maintained her distention. On examination I felt sure I could palpate a mass over the sigmoid. Operation revealed a thick walled annular carcinoma. A resection with end-to-end anastomosis was done. Patient has been well for one year without recurrence.

General Considerations: Surgical Anatomy and Physiology.—Cancer anywhere under 45 years of age is unfavorable, between 45 and 60 years favorable and over 60 years more favorable because the vessels including the lymphatics and glands are more scarce. One-half the deaths occur before cancer involves the lymph glands nearby; *i. e.*, when it is removable.

The alimentary canal is unique in this respect, as elsewhere. Few cancers destroy life in their original location, but overcome the individual by metastases. Here, however, a large number show obstruction as the first symptom. Others show repeated attacks of partial or sub-total obstruction or ulceration with or without hemorrhage.

In the colon, not including the rectum, malignant tumors are seventeen and one-half times more frequent than in the small bowel. Of the entire intestinal canal 75 per cent. are in the rectum, 25 per cent. in the large intestine above the rectum and 2 per cent. in the small intestine. Two-thirds of the large intestine are in the cecum or sigmoid; 7 per cent. of all involve the cecum. They occur just as often in patients with no history of constipation as in constipated individuals. In general a carcinoma located here is younger than elsewhere. The majority occur between the ages of 35 and 60, but cases do occur before and beyond those limits, more frequently beyond. Sarcoma tends to occur in younger

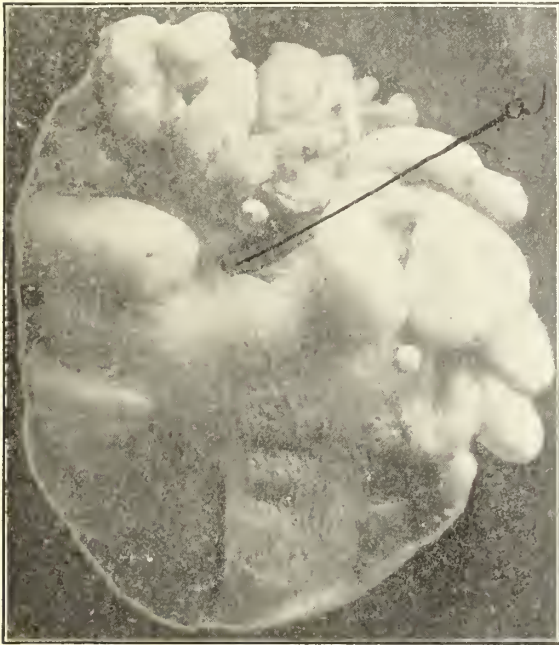


Fig. 5. Same as Fig. 4 before splitting the intestine. The depression (a) may have been the site of an old ulcer.

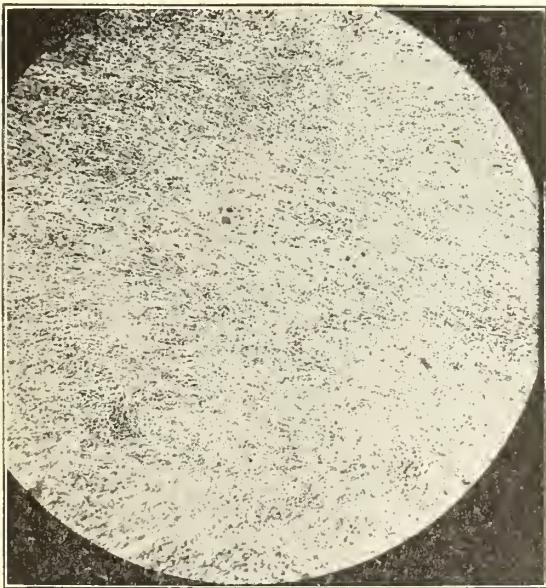


Fig. 6. Large spindle cell sarcoma. Microphotograph taken from the firm base attached to the intestinal wall (a) in Fig. 4.

transverse colon (Fig. 4) with an almost but not complete obstruction. Wide resection with end-to-end anastomosis was done. The patient made an excellent recovery and is apparently perfectly well now two years after operation.

individuals, 18 to 40 years. My cases of sarcoma occurred under 20 years of age.

In embryo the colon develops on the left side of the abdomen, the head beginning rotation about the eleventh week. As this continues it carries with it the blood vessels, lymphatics, and nerves, and when its terminal situation is finally accomplished the outer mesenteric attachment is merely a peritoneal adhesion. When this is divided at any location any part of the colon can be made so pliable that it can be turned in any direction on its inner mesenteric layer which contains all important structures. The costo-colic ligament which holds the splenic flexure in its elevated position originates from the omentum and contains a blood vessel. The high location of the splenic flexure enables the mechanical detention of the products of digestion in the proximal absorbing portion of the colon. Under normal conditions large intestinal contents as far as the splenic flexure are fluid or semi-solid, the descending colon is usually empty and acts as a passageway to the sigmoid where the solid feces become formed. Retroperistalsis is the normal movement of the colon except during defecation.

The mid-gut forms the intestine from the middle of the duodenum to the splenic flexure of the colon and concerns assimilation. The mid-gut corresponds to the area of distribution of the superior mesenteric artery. Ninety per cent. of the solids are assimilated and 50 per cent. of the fluids are absorbed in the jejunum and ileum and 10 per cent. of the solids and 50 per cent. of the fluids in the large intestine proximal to the splenic flexure. The reaction of the small intestine is alkaline and of the large intestine acid. The reaction between the alkaline juices of the small intestine and the acids of the large intestine causes the formation of gases which play an important part in the further progress of residue of the large intestine. The acid reaction of the large intestine and its dirty soil form active media for the growth of the colon bacilli, putrefactive and other bacteria which thrive in acid media. The hind gut forms the descending colon, sigmoid and rectum to the anal canal and corresponds to that area of distribution of the inferior mesenteric artery. The descending colon acts as a passageway only and the sigmoid acts as a fecal container. Its traplike curve enables it to hold feces and form the bolus or stool.

From the ileocecal valve to the descending colon the muscular control depends on internal secretions and the sympathetic ganglia, and while influenced by Auerbach's and Meissner's plexuses, this control is largely independent of the cerebrospinal nervous system, because the maintenance of the body is a primitive func-

tion and existed before the developments of the cerebrospinal system.

The large intestine is five to five and one-half feet long, about one-fifth of the length of the intestinal tract. The transverse colon which, including the hepatic and splenic flexure, is about 20 inches long and the pelvic sigmoid have well developed mesenteries. The ascending and descending colons and the iliac sigmoids are more or less attached to the posterior lateral points. The last six inches of the ileum has the same blood supply and lymph drainage as the cecum through the ileocecal vessels. From the standpoint of treatment this is important because in old malignant diseases of the cecum and appendix the terminal six inches of the ileum must be removed.

Occasionally a lymph gland will lie in the meso-appendix and if so lymph drainage from the right ovary and tube may find its way into it through Clado's ligament. All of us have palpated this enlarged gland in the meso-appendix in cases of acute appendicitis and may often demonstrate the involvement of this gland as indicative of an existing appendicitis even when the inflammation is catarrhal.

The ascending colon is supplied by the right colic artery, a branch of the superior mesenteric, anastomosing below with the ileocolic and above with the branches of the middle colic. The lymphatic drainage extends into the lymphatic glands at the base of the right colic artery and also into the ileocolic group.

In carcinoma of the ascending colon it is necessary to remove the cecum and terminal six inches of the ileum in order to secure the tributary lymph nodes.

The splenic flexure has a reduplication of the peritoneum derived embryologically from the omentum which is sufficiently defined to be called the costo-colic ligament. This ligament has no large blood vessels and by division of it the splenic flexure is loosened from its deep location and readily delivered.

In the hepatic flexure there is not this retention and therefore it is easily accessible. Lymph drainage of the hepatic and splenic flexures and transverse colon flows into the base of the transverse meso-colon. Lymph nodes are in close communication with the deep lymph chain along the aorta and about the head of the pancreas and in malignant disease removal of the lymphatic bearing mesentery is here difficult.

The left colic artery supplies the descending colon but its anastomosis with the middle colic artery above and sigmoid artery below makes extensive resection in this vicinity safe. Lymph glands here are sparse. Lymph drainage here is toward the inferior mesenteric group of glands by way of the left colic vessel.

The sigmoid colon derives its blood supply from the sigmoid artery, a branch of the inferior mesenteric which anastomoses freely above with the left colic and below with the superior rectal artery. The lymph and drainage follows the vessels and Moynihan states that the highest lymph node is at the origin of the inferior mesenteric artery. It is therefore necessary in carcinoma of the sigmoid to resect extensively so as to remove Moynihan's gland with the mesentery although this may necessitate destruction of the inferior mesenteric artery with its tributary intestine. Lymph glands are much less abundant in the large than in the small intestine.

The large bowel is essentially a dryer. Exclusion of a loop of intestine is only safe when some exit is left for the secretions of the excluded part.

Proximal to the splenic flexure tumors of cecum and colon are sometimes accompanied by malnutrition and anemia.

In examining a case I heard a very close observer and surgeon state that the patient almost had the cachexia of a carcinoma of the cecum which was peculiarly distinctive in these cases. This was borne out in my cases of the cecum, ascending and transverse colons. The anemia, cachexia and malnutrition were profound, one case being diagnosed previously as an advanced intestinal tuberculosis. Below the splenic flexure this early cachexia is rarely present, and mechanical obstruction is often the first warning of the tumor. Both cases of carcinoma of the sigmoid were brought in for slowly developing constipation ending in an acute obstruction. Neither showed cachexia nor anemia. Therefore, the higher the location the more apt are the cases to show primary symptoms of cachexia and anemia. Metastases in colon cancer are very late and vary from six months to twelve years before death occurs. Secondary infection plays a prominent part in the progress and causes local or spreading suppurative, fistulous tracts or communications between adjoining coils of colon or with stomach, small intestine and bladder. This is responsible for the cachexia which develops and which may be duplicated by an inflammatory process without carcinoma. Few subjects succumb because of the extent and metastases of the tumor. Deaths are usually from obstruction or suppuration. Extension beyond the intestinal wall occurs late and metastases are less frequent than with similar growths elsewhere.

Pathology.—In carcinoma Hauser points out that the gelatinous tumors tend to perforate the wall and produce metastases in the peritoneum and adjoining lymph nodes, but rarely in the bone marrow. Medullary carcinoma limits its metastases to lymph nodes,

while scirrhus tumors often produce growths in the liver. Zimmer supports these conclusions. My case of carcinoma of the cecum developed a later growth in the liver.

The lymphatics of the colon follow the blood vessels of the mesenteric system. Metastases usually lodge in distant or neighboring lymph glands, liver, peritoneum, lungs and brain. They usually reproduce original structures.

All of my cases were annular in type except the one in the cecum which was scirrhus, and the one in the ascending colon having the retro-peritoneal cyst and metastases. They had extended clear around the colon and gradually obliterated its lumen. Most were operated upon after they had developed complete or partial obstructive symptoms except the ones in the cecum and ascending colon where in both carcinoma and sarcoma cachexia, loss of weight and anemia prevailed, which was so typical of all of my cases and the reported cases of this portion of the colon. In the annular type there is a gradual obliteration from an ingrowing circular growth with a sort of hour-glass constriction.

The histogenesis of carcinoma of the large intestine, as fully traced by Hauser, Verse and others, shows that the disease usually arises in a circumscribed area of mucosa in which the glands become enlarged, the lining cells hypertrophied and multiplied, the production of mucous cells increased and the lumina elongated and bifurcated. The neoplastic alveoli soon break through the muscularis mucosa and extend along the submucosa, often reaching the surface at lateral points and thus extending the lesion or penetrating the muscularis along lymph and blood paths. In the early stages of most cases and in some throughout the disease there is a gradual extension of the area of origin by the progressive transformation of normal into neoplastic alveoli. This process is more pronounced in the colon than in the stomach and is often indicated by a peripheral zone of papillary outgrowths of mucosa about the ulcerated tumor, as well as by microscopic evidence of such transition.

The anatomical varieties are (1) Adenoma destruens producing at first circumscribed elevations in the mucosa which gradually extend deeply and laterally, obstructing the bowel and soon ulcerating. This is the type that is very often accompanied by bleeding and extends along the bowel, as much as 14 inches of the bowel having been reported as involved in this type of cancer. It is confined most often to the sigmoid and rectum, and presents the most typical form of malignant adenoma and its different variations.

(2) Stenosing fibro-carcinoma, which produces first a superficial ulcer with pronounced

induration due to fibrosis. This is the annular variety, is the most common and was the type present in all but one of my cases. A tight annular stricture with its accompanying complications develops. In stenosing carcinomas the length as well as the lumen is often encroached upon due to cicatricial contraction. The structure of this tumor usually presents diffusely growing, small groups of atypical cells widely infiltrating the coats of the intestine and the abundant connective tissue.

(3) Gelatinous adeno-carcinoma: These are not uncommon and are the type that often causes perforation or cachexia, which are the first symptoms noted. Gelatinous material may be found in the peritoneum or in the pelvis. It spreads widely over the peritoneum and produces miliary nodules.

That a sarcoma of the large intestine is extremely rare is evidenced by the careful review of the literature by Jopson and White in 1901, which reports 17 cases of undoubted primary sarcoma. In only 14 was the growth confined altogether to the large bowel, these being limited to the cecum and ascending colon. In sarcoma of the intestine only 30 to 40 per cent. occur in the large intestine which differs markedly from carcinoma of the intestine, 95 per cent. occurring in the large bowel.

Pathology.—According to Farrar the most frequent type is the round cell sarcoma and next the lymphosarcoma. Other than the case herein reported only one spindle cell tumor in twenty cases is collected from an exhaustive review of the literature. The tumor reported in Case 1 was of the large spindle cell variety arising opposite the mesenteric border evidently at the base of an old ulcer, fortunately for the patient at a place where the small terminal capillaries are located and large spindle cells could with difficulty enter the blood stream. This probably accounted for the non-demonstrable involvement of the lymph glands and the growth remaining local, as seven years have elapsed since the operation without a recurrence. This tumor was peculiar in that it had a very vascular papillomatous meshwork of spindle cells superimposed on the firmer sessile base made up of a closely packed, less vascular mass of large spindle cells coming from the intestinal wall. Most writers claim that these tumors arose from the submucosa and this particular specimen seemed to conform to the others in this respect.

Differential Diagnosis.—This usually cannot be made. Carcinoma and spindle cell or giant cell sarcoma do not differ appreciably in their slow onset with late metastases, but in carcinoma obstruction is the most marked primary symptom, while in sarcoma hemorrhage from the bowel is very much more pronounced and can be readily explained if one will ex-

amine the pathology of the two specimens presented. Temperature was a very pronounced symptom in the large spindle cell sarcoma probably due to secondary infection. The location in the bowel will determine in most cases whether obstruction or cachexia is the first symptom noted. Very profuse hemorrhages and low blood pressure and hemoglobin due to it are characteristic of sarcoma while in my cases of carcinoma there were no hemorrhages and the blood pressure remained unchanged except that it was occasionally increased due to toxic effects on the reno-circulatory apparatus. Sarcoma is apt to occur in younger individuals. A very hard differentiation is between sarcoma and intestinal tuberculosis. Symptoms may point to intestinal tuberculosis even in the presence of a negative Von Pirquet. Any intestinal tumor is often too obscured by gas to be palpated and the X-ray is only valuable to locate the obstruction.

As shown by Cabot in a paper on Mistaken Diagnosis, based on 1,000 autopsies, the value of finding tubercle bacilli in the stools has been greatly over-estimated. Very frequently in intestinal tuberculosis there are no tubercle bacilli in the feces and even their presence is often misleading. Patients may ingest tubercle bacilli from the outside or may cough up tubercle bacilli in tuberculous sputum and swallow them. In either case they may appear in the feces.

The more common occurrence of intestinal tuberculosis in young adults and the extreme rarity of malignant intestinal tumors in the same individuals would make one strongly inclined to the diagnosis of intestinal tuberculosis or some condition other than intestinal sarcoma. X-ray serials after bismuth or barium meals should afford a great aid in arriving at satisfactory conclusions so far as the location of an obstruction is concerned. In the ileo-cecal region it may be most difficult to decide between ileo-cecal tuberculosis, sarcoma, cancer and actinomycosis.

The round cell variety of sarcoma is usually easy to diagnose with its whirlwind onset, rapid progress, and early death. It almost seems as if the growth had overrun the individual before he had time to become emaciated.

Sometimes symptoms which may be present in any tumor of the intestine are visible peristalsis, abnormal contour of the abdomen and bowel inflation. The diagnosis when the tumor is above the rectum is only tentative.

Treatment.—The mortality from operation is 15 to 30 per cent., depending on the experience, judgment and capability of the surgeon, the amount of obstruction present, the age and constitution of the patient.

In preparing the patient it should be re-

membered that the liquid stool contains very active bacteria of the colon type. Therefore catharsis should not precede colon operations. A physic should not be given later than 48 hours preceding operation. It is also easier to handle a bowel with a semi-solid content. The ascending and descending colons and iliac sigmoid are devoid of posterior peritoneum. At least one end should be surrounded by peritoneum. For this reason resection of the sigmoid has a higher mortality than resection of the cecum.

With a distended intestine from obstruction the less the mesenteric attachment is handled the better. In these cases if immediate union is decided upon, a lateral anastomosis is safe and satisfactory. End-to-end anastomosis is better the more nearly the intestine approaches the normal. If, on account of mesenteric traction, injury to vessels or distended gut you have reason to doubt the viability of the gut at the site of the anastomosis fasten the area of anastomosis to the peritoneum underneath the abdominal wall incision and carry strips of rubber tissue down to it. Never use gauze for this.

If a preliminary colostomy, cecostomy or one of the preliminary gut drainage stunts is done, and the tumor with the attached intestine sewed outside the abdomen at another point, the tumor with its attached intestine may be cut away the third to the sixth day. Heavy clamps are then applied to the spur on the twelfth to the sixteenth day. This bites through about six days later. Lateral anastomosis to relieve temporary obstruction may be resorted to. Ileo-colic union is easy because of the difference in the structure of the two portions of the bowel. After any operation on the colon it is well to dilate an anal sphincter and insert a rectal or colon tube.

In carcinoma of the cecum the terminal six inches of the ileum and at least half of the ascending colon should be removed and a lateral anastomosis made between the upper ascending colon or transverse colon and ileum. End-to-end anastomosis when done carefully in all other locations has served me best. The gut can be united in continuity with its long axis and this seems to be the most logical and best method. A preliminary colostomy in an acute complete obstruction or partial obstruction with toxemia is always good surgery.

Mobilize any portion by incising the outside peritoneum.

In selected cases with a great many adhesions of a large infiltrating edematous tumor it may be well to sew the whole involved gut outside the belly cavity and amputate it later and then obliterate the deep septum with heavy clamps. This should be decided by the judgment of the surgeon handling the case and

these are the cases that often test his greatest acuity. In closing I might add that when a man has reached the place in abdominal surgery where he can handle malignant tumors of the colon with relative success he has attained the ambition of all abdominal surgeons because no malignant tumors offer him more hope for cure than those located here.

While this field of surgery is attractive from the standpoint of probable cure of cancer it is equally difficult from the standpoint of fine technic, aseptic judgment and diagnosis. It seems too bad that one of the least malignant cancers of the body should grow in its filthiest soil but such is the case. Difficult as it is this branch of surgery the better the judgment, asepsis and diagnostic thoroughness used the sooner will the surgeon be able to handle these cases with a good relative percentage of immediate and ultimate successes.

DISCUSSION

DR. WM. T. ELAM, St. Joseph: The doctor has been thorough in reviewing his cases. He is not to blame on account of his inability to make his diagnosis prior to the operation, because when the time comes that you can make a diagnosis of carcinoma or sarcoma of the intestines by symptoms before you open the belly, the chances are there is no use to operate. This illustrates the fact that the man who enters the belly under any pretext must have at his fingers' end the various methods of dealing with whatever condition he may find. He who has that best at his command and can most readily use it, will in the end get the best results in all forms of abdominal surgery.

As a matter of fact, I do not quite agree with the methods of handling the cases the doctor reports. I think the treatment of carcinoma of the large intestine, of the colon, as well as sarcoma, should be by the two-step method. In the first place, all the inflammatory symptoms that are produced are produced by the passage of the fecal stream, plus infection. The logical thing would be, not to try to remove the obstruction immediately, but to make—as has been advocated by Bevan, Crile, and others—your colostomy, establishing an artificial anus, thereby relieving the tumor mass from the irritation caused by the fecal stream, and later go into a fairly clean abdomen and make your dissection wide and thorough enough to remove the growth, if possible. We all know this often cannot be done. Even though you may remove all that is palpable, yet you cannot be sure you have removed the entire involved area. By this means you will no doubt get the very best results.

Here comes again the question of radium and X-ray. I am not an X-ray or radium enthusiast to the extent that I believe it will work extraordinary wonders. But as long as it is claimed by men who are supposed to have some knowledge and ability along these lines to be of benefit in cancerous conditions, we owe it to our patients and ourselves to use it following, and in some instances preceding, operations where malignant conditions have been diagnosed. So, even though you find you have a cancerous condition, the method should be, if possible, to establish drainage, and remove your malignancy later.

DR. H. K. WALLACE, St. Joseph: I want to emphasize two points. One is in the diagnosis. I

think all these cases of old people, or people past the fifty-year mark, who come without a previous history of constipation, with a history of gradually increasing constipation, carcinoma or sarcoma of the colon should be suspected and an X-ray examination made early, before we have the resulting symptoms of more or less acute obstruction. If we operate earlier, a great many more will get well and stay well.

In all these cases you cannot be too radical. It is not uncommon to find a case that looks like it is inoperable, with an inflammatory mass that appears to be an extension of the carcinomatous process. In a certain percentage it is wholly inflammatory, and if this mass is entirely removed there will be a larger percentage of cures than we are getting now, or than will be gotten if a colostomy is done.

DR. WM. ENGELBACH, St. Louis: I wish to discuss Dr. Potter's very thorough presentation from two standpoints: (1) diagnosis and (2) treatment.

The differential diagnosis of lesions of the colon, even with X-ray aid, is not simple. From personal experience it has been found that the two lesions most frequently mistaken for malignancy are diverticulitis and gumma. In some cases of diverticulitis in which there is a very marked pericolicitis, producing a thick-walled colon, fixed in an inflammatory mass around the colon, the whole pathological picture, even at operation, frequently simulates malignancy so closely that many cases undoubtedly have been diagnosed carcinoma upon the macroscopical appearance. Trochoscopic examination or X-ray plates of the filled colon show a very definite filling defect, apparently confirmatory of the diagnosis of malignancy. In a great majority of these cases of diverticulitis, the X-ray also shows tit-like projections somewhere along the course of the colon which, if properly interpreted, at once suggest the diagnosis of diverticulitis. In some of the advanced cases, however, the inflammatory pericolicitis is so extreme as to obliterate these little tit-like diverticuli and produce an X-ray shadow resembling that of a malignant growth more than any other lesion. In these cases the history, with the other infectious signs, is most helpful in differentiation. The course of a diverticulitis usually presents acute febrile attacks, consisting of sudden extreme pain in the left side, associated with fever, fast pulse, leukocytosis, localized tenderness, etc., very similar to those of appendicitis, occurring in the left inguinal region.

Personal experience with a number of gummata of the large intestine has proved the striking resemblance of this lesion to malignancy. There are frequently associated the general signs of malignancy, such as cachexia and rapid loss of weight, without febrile or infectious signs (fever, leukocytosis, etc.), to which are added the local signs of increasing colonic obstruction, bloody feces, etc.). Routine Wassermann examination and the therapeutic effect of specific treatment will prove the diagnosis in the majority of these cases.

Second, with regard to treatment, I feel sure, from my own experience, that intensive X-ray treatment has not been carried out sufficiently in these cases. The following are two illustrations: I recently had the opportunity of autopsy of a prominent physician in St. Louis, whose course ran like this: Seven and one-half years ago he had an attack which was diagnosed appendicitis. A few months later he had a recurrence of the same sort of attack, resulting in a mass in the region of the cecum. He was explored at the Mayo Clinic, with a post-operative diagnosis of malignancy of the peritoneum. At autopsy, the histological report made by Dr. R. L. Thompson demonstrated a carcinoma, which probably had begun in the appendix, probably a colloid carcinoma. This type of carcinoma frequently be-

gins in the appendix and simulates acute suppurative appendicitis very closely. X-ray treatment was undertaken after this exploratory laparotomy and the patient lived in comparative comfort, continuing to practice medicine, until a few months ago.

The second case is that of another physician, in whom a positive gastric malignancy, with metastasis in the liver, was discovered at operation. The diagnosis was made by histological examination. Intensive X-ray treatment afforded comparative comfort, with professional capacity, for over six years. A few of these cases illustrate the value of very intensive, prolonged X-ray treatment of malignant cases which a few years ago appeared to be hopeless.

DR. H. S. MCKAY, St. Louis: I should like to emphasize the value of the two-stage operation for malignant growths in the colon, particularly splenic flexure and sigmoid. I am sure this will reduce the mortality markedly, especially in the presence of obstruction. A patient with obstruction does not stand surgery very well. When it is possible to bring the carcinoma up outside the incision and leave it for a few days, to be cut off later, undoubtedly the mortality will be greatly lessened. This operation can be readily done under local anesthetic. In the presence of obstruction, an opening can be made in the proximal gut, after the method of Dowd. The mortality will be greatly reduced by this two-stage procedure and ultimate results will be improved.

DR. POTTER (in closing): I highly approve the two-stage operation and have performed it in two cases. The indications are, inflammation and obstruction. If you cannot get a thorough evacuation one must perform an enterostomy, colostomy, or some sort of drainage.

So far as X-ray is concerned in malignant disease of the colon, I think it is only valuable from the standpoint of diagnosis, and then merely to locate the obstruction. It gives no information as to the type of tumor.

In regard to the treatment of internal carcinoma with X-ray and radium, I am a great skeptic regarding its efficacy. Dr. Engelbach stated that eight years elapsed before the man's death following post-operative radiation. Statistics show that without radium or X-ray therapy, cases will often live eight to twelve years—the mortality time ranging from six months to twelve years, some cases having been reported as not dying for twelve years after local metastasis has developed. As it is the slowest to metastasize of any of the malignant growths, I think it is perhaps well to try X-ray and radium therapy. You do not know the effect except in certain cases the patient develops a profound anemia and distress, but, to give the patient the benefit of the doubt, use it. Its efficiency is very doubtful.

Carbry Building.

EPIPHYSITIS OF THE FEMUR IN CHILDREN*

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Epiphysitis of the upper end of the femur is a condition which is fairly common. Likewise it is a condition of considerable importance, because it menaces life and results in grave interference with the function of the hip-joint and usually causes permanent crippling.

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Under the term epiphysitis is included here any condition in which we have inflammation or destruction of the epiphysis of the upper end of the femur. Such processes may be classed under these headings:

(1) Tuberculous epiphysitis or hip-joint disease.

(2) Perthe's disease.

(3) Pyogenic epiphysitis.

Within the past year, twelve cases of epiphysitis have come under observation. Of these, one was tuberculous, three were cases of Perthe's disease and eight were pyogenic in type.

Tuberculous Epiphysitis.—It seems unnecessary to devote much space to a discussion of this condition as it is so well known. The insidious onset with stiffness and limp, followed by pain, local in the hip-joint and referred to the inner side of the knee, the night cries and gradually developing deformity of flexion and adduction are familiar to all. The X-ray findings of erosion and progressive destruction of the head of the bone without any tendency to new bone formation are characteristic. Likewise, the treatment by absolute rest, direct exposure to sunlight, and forced feeding has become almost classic by use and needs no elaboration here.

Perthe's Disease.—The condition known as Perthe's disease has been more recently described and is less well known. The pathology of this disease consists in a gradual absorption of the calcium salts from the head of the femur and a gradual flattening and thinning out of the epiphysis. Although much investigation has been carried out as to the causation of this condition its etiology is by no means settled. Syphilis, mechanical interference with the blood supply of the epiphysis and abnormalities of the glands of internal secretion, with interference with calcium utilization, are the most widely accepted causes. Three of our cases were Perthe's disease. In two there were evident signs of hypopituitarism, and in one there was congenital syphilis.

The condition may affect one or both hips. The only symptom is the appearance of a limp, without pain and with no limitation of motion except a slight degree of limitation of abduction; this latter is not always present. Shortening is present if the flattening out of the epiphysis has progressed to a considerable extent. There is no elevation of temperature. The X-ray shows a cloudy or mottled head and a definite flattening and thinning of the epiphysis, sometimes fragmentation.

The most common error in diagnosis is to mistake Perthe's disease for a tuberculous epiphysitis. The absence of pain, limitation of motion and deformity other than shortening, and by X-ray, the absence of any actual de-

struction of the head of the femur, with the characteristic flattening of the epiphysis, should make the diagnosis between these two conditions clear.

The treatment of Perthe's disease consists in taking the weight from the affected limb by elevating the shoe on the sound side, or partial recumbency when both hips are affected. Abduction of the hip should be maintained by some form of fixation, as a plaster cast, celluloid shell, or brace. We have endeavored to promote calcium utilization by forcing the fat elements of diet and giving cod-liver oil. In those cases showing hypopituitarism, the gland has been given and vitamins in the form of metogen used with some benefit, we feel sure.

The disease usually runs its course in from one and one-half to two years and during this time it should be carefully watched and the hip or hips protected as described above to prevent shortening. When X-ray shows a return to normal calcification in the epiphysis, protection may be dispensed with.

Pyogenic Epiphysitis.—Of the three forms of epiphysitis under discussion the pyogenic type is by far the most serious, in our experience, first, because in the early stage it sometimes results fatally, and, second, because in the majority of cases it leaves an ankylosed and permanently crippled hip-joint.

The infecting organism in four of our cases was staphylococcus; in two, streptococcus. The portal of infection in these cases is the blood stream. The source of infection, however, is almost invariably a focus of infection elsewhere in the body. The tonsils, and middle-ear disease, seem to be the most common sources of trouble. In all of our eight cases of pyogenic epiphysitis, infected tonsils were found. In four cases an attack of acute tonsillitis had immediately preceded the onset of the trouble in the hip; in one the hip involvement followed an attack of scarlet fever with severe throat symptoms; two had had discharging ears for some time.

Injury plays some part in the causation, without doubt, but probably only by lowering local resistance and determining the point of localization.

Pyogenic epiphysitis in contradistinction to the other two forms, comes on suddenly, the temperature being high (103 to 105°). There is great pain in the hip, which is swollen and red. The hip is drawn up into flexion and the slightest attempt to move it is resisted. There is leucocytosis of 15,000 to 25,000. X-ray in the early stages shows only a cloudy appearance of the joint or nothing at all. Later there is marked destruction of the epiphysis and new bone formation.

If the disease is allowed to run its course, it results fatally, or recovery occurs with an

ankylosed hip-joint, almost invariably in a position of deformity, adduction and flexion. In a large number of cases, pathological dislocation of the head of the femur occurs with 2 to 3 inches shortening, extreme adduction and flexion deformity and a seriously crippled extremity.

Treatment.—The early treatment in pyogenic epiphysis is of great importance. Much can be done in the early stage to limit destruction and preserve function. The most successful procedure in our cases, when seen early, was as follows: Free incision down to the epiphysis and free drainage of the involved area in the bone. The patient is at once placed on a Bradford frame with traction on the limb in full abduction. The temperature rapidly falls and induration and pain disappear. When the general condition has improved and the patient is in better condition to stand the longer operation, all necrotic bone is thoroughly cleaned out with gouge and chisel and the wound treated by the Carrel-Dakin method. When bacteriological examination shows the wound is sterile, it is closed by deep sutures of silver wire. This is usually possible within three to six weeks. During the entire time traction on the leg in abduction is used to prevent deformity or pathological dislocation. Three of our eight cases seen within two weeks of onset treated in this way have practically normal hip-joint function.

Where the condition is of several weeks or months' standing, with evident abscess formation, the same form of treatment is used. At times, in these older cases, we can omit the preliminary drainage and clean up at the first operation. Five of our cases were of long standing, from two months to three years. In the case of two months' duration, the entire epiphysis was necrotic and was removed. He now has about 50 per cent. of function and walks with scarcely a limp. One of four months' duration, not treated by operation, has an absolutely ankylosed hip with beginning luxation of the diaphysis. Three cases of several years' duration, untreated by operation, had absolute ankylosis in adduction and flexion with an average of three inches shortening. One had pathological dislocation and discharging sinuses of three years' duration; under operative treatment and Carrel-Dakin, the sinuses healed in six weeks. On two of these cases an arthroplasty was done, but it is as yet too early to report results.

Conclusion.—(1) Epiphysitis of the upper end of the femur causes serious permanent disability and is deserving of the most careful treatment.

(2) Confusion in diagnosis between tuberculous epiphysitis and Perthe's disease should be avoided, as the prognosis in the lat-

ter is so much more favorable and the treatment less severe.

(3) In pyogenic epiphysitis, early drainage and cleaning up of infection is the best form of treatment and gives the best functional result.

DISCUSSION.

Dr. Robt. M. Schauffler, Kansas City: I am glad the Doctor showed his pictures, even at a disadvantage, because they illustrate the first point I want to make—that he is talking about three conditions occurring in the same anatomical location, different in etiology and in treatment. The success he has had and is having is because he is able to distinguish them, which is quite a difficult task, sometimes. He should be complimented for his nerve and good judgment in operating on these cases of infectious epiphysitis early. There are few men who have just that combination. It is obvious if he operated on Perthe's disease or cut down on tuberculosis, he would be doing a great wrong. So it comes to the question of whether you can correctly sort them out. I think we may justly say he has saved that patient either a severe osteomyelitis or an infectious arthritis with a sure ankylosis afterward, and a possibility of pathological dislocation.

A word about Perthe's disease: I think it is used today as a convenient term for a large class of cases. You will be disappointed in that classification if you confine yourselves to the classical description and articles on Perthe's disease. I have in my diagnosis index a heading of "Deforming Epiphysitis of the Upper End of the Femur, Metabolic or Non-traumatic." What it means I do not know. It is a typical Perthe; does not show these classical islands of refraction which were shown in one of the pictures. The neck of the femur softens: it shows a caramel like consistency throughout. The head is flattened and the neck pulled out without exhibiting those characteristic changes. The cause is still unknown, and is mixed between obscure changes in the ductless gland secretion—in the calcium intake and output of the body. This is the cause of many cases of coxavara whereas in the past traumatism has been given as almost its only cause.

It is undoubtedly true that there are a great many cases in which there was an unreduced fracture, but there are a number of cases coming to our attention which won't show a typical Perthe's, and yet you must put them in the noninfectious and nontraumatic group. The femur has deformed itself because it did not have normal strength. People have hunted for reasons for it all the way down the line. We are very much interested in trying to get any data you have on these cases to find some least common multiple or greatest common divisor in them.

Dr. Edw. H. Skinner, Kansas City: It might be well to emphasize some of the differential points Dr. Dickson brought out from the X-ray findings of these three conditions. From the analysis of X-ray plates we are able to obtain a great deal of information.

In the first place, in the condition which has been described as Perthe's disease, you will notice the epiphysis is always dense. There is no decalcification of the epiphysis in Perthe's disease. You may have some loss of lime salts in the adjacent diaphysis. This is contrary to the finding in tuberculosis, because the one important factor in all active tuberculous bone lesions is the loss of lime salts. Not only does the epiphysis partake in this decalcification but the diaphysis as well. If the negative includes both hips, this decalcification is apparent in the affected hip. The area of destruction in the tuberculous process depends upon the time at which this is recorded.

In infectious epiphysitis you do not get the early

record upon the X-ray plate. Even when the epiphysis separates you will still have a normally appearing epiphysis. It will look very good and will have no deformity such as you find in Perthe's disease. The amount of decalcification will depend upon how long the circulation has maintained itself in the epiphysis. If cut off early, it may appear perfectly clean. The rim is clean and smooth and it has lime salts. The amount of decalcification depends upon how soon the circulation is cut off. When cut, the epiphysis becomes dead and gives sharp shadows.

In Perthe's disease the epiphysis is dense; in tuberculosis it is decalcified; in acute epiphysitis you may have a clean and perfectly intact epiphyseal outline.

Dr. W. T. Coughlin, St. Louis: The only part of the paper that especially concerns me is that which deals with the acute epiphysitis of pyogenic origin. I do not know of anything that I am ever called to see that is of more serious importance than that condition, because in that condition death may occur almost as quickly as with acute appendicitis. This is a fact that is not generally known to the profession at large. If it is true, and I am sure all those who do much of this kind of work can vouch for the truth of it, it behooves us to be alert and make an early diagnosis of the condition. There is never any likelihood of making a mistake between acute epiphysitis of pyogenic origin and one of tuberculosis. In acute epiphysitis of pyogenic origin, the onset is fulminating. The patient is in great pain and may very soon become delirious. He has a temperature that is high, and he has not any swelling around the joint any more than he has in t.b. disease in its early development.

Now, the great severity of the pain, high temperature, high leucocyte count, with some interference with the function of the part, should tell the physician what he is dealing with.

Acute epiphysitis in this sense I take to mean the same thing as acute osteomyelitis. It begins on the diaphyseal side of the epiphysis. It does not help in diagnosis where the epiphysis is within the capsule, like the upper end of the femur, but it helps when the line is outside, like it is at the upper end of the tibia, because when it is attacking an epiphysis like the former it is not long until there is arthritis. Then one has the signs of arthritis—immobility of the joint and the loud protest at the very slightest attempt to move the part. If in the hip joint, the limb is in adduction and inward rotation and flexion, and the patient is not satisfied with letting it lie on the other leg, but puts the other leg out of the way and lets the knee rest on the sheet.

Knowing the pathology of the condition, if you will just bear a minute I will tell you why it is death is so imminent in these cases. The process begins in the diaphysis close to the epiphyseal line. As the organism grows, it produces toxins that inflame the walls of the little veins and venules. As soon as they are irritated on the outside, there is an irritation on the inside and clotting occurs in the vein, which clot grows until its end reaches into another vein. This clot is infected with microorganism. Bits of clot, sticking out of the mouths of venules, are washed off into the circulation and go to the patient's lungs. I have seen a patient die as early as the fifth day.

The most terrific case I have seen was a patient about five years old, screaming and in great pain. She had been sick since Wednesday, and I saw her on Sunday. She was lying on the side, with hip rotated inward, flexed and adducted. There was no swelling around the hip joint. Any attempt to move the hip joint was resisted. If the trochanteric epiphysis is involved, any attempt to adduct the limb will be resisted, while if in the hip joint, a little further adduction does not give the same amount of pain the corresponding amount of abduction will give.

I felt convinced I was dealing with a case of pyogenic epiphysitis of the head because of the sudden onset of the thing with high leucocyte count, history of some kind of sore throat a week before; that the limb suggested an arthritis present, and the X-ray showed nothing. There was no swelling, yet I know if there is an epiphysitis at that point, it won't be long until there is arthritis as well.

The idea in my mind was to get to the focus of infection as quickly as I could and establish drainage to the surface. The patient had vaginitis, there was not anything to suggest it was of gonorrheal origin. At the same time, there were many standing by who expected to see me open a gonorrheal joint.

It is the earliest one I have had the opportunity to open. On opening, we encountered a considerable quantity of clotted blood and under great tension. It popped out as soon as the opening was made. Here and there were flecks that looked like fibrin. A smear showed the presence of staphylococci in abundance. The trouble was not yet located. Where was the original focus? That was the bothersome question. As long as it is not opened up, all operation is futile, as emphasized by the late Dr. J. B. Murphy. It must be uncovered, or the patient will get along as if no operation had been performed.

We bored a hole into the neck of the femur, and there was not any exit of pus. We took cultures from the bottom of that hole. The cultures showed staphylococci within the center of the bone. But we saw no pus.

The patient died within twenty-four hours. No post-mortem was obtained. But no doubt the lungs were filled with emboli. The focus in the neck of the femur had been opened, but not opened enough, or perhaps not soon enough.

If there is one thing I wish to dwell on about the condition, it is the necessity for early diagnosis and prompt treatment.

Dr. Dickson: I am glad Dr. Schauffler mentioned the fact that these were widely divergent conditions. I grouped them in this way because they are conditions very frequently confused in the diagnosis. Also what he said about many forms of deforming epiphysitis is quite true. You can get almost any variety of deformity in the upper end of the femur.

I am glad one point was emphasized which I always feel should be in dealing with bone work, and that is that to go down to a bone and incise the periosteum and stop is the most futile thing I know of. Unless you go in and drain your bone, you might as well not do anything, in osteomyelitis or epiphysitis.

Waldheim Bldg.

THE USE OF THE ROENTGEN RAYS IN THE DIAGNOSIS OF CHEST COMPLICATIONS*

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ST. LOUIS

While presenting to you the use of the Roentgen rays as a diagnostic help in chest complications, bear in mind that I do not speak of a "Roentgen-ray diagnosis." The roentgenologist is one of a group. His findings are to be classed with the laboratory findings, and

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the ability of the roentgenologist will determine the value of his findings.

In lung work when we are looking for early signs, such as the very early detection of tuberculous infection, we are often uncertain of what we see. The earliest signs on the plate may be only a peribronchial thickening. This may be seen in many other conditions. Again, the diaphragm may be slightly less movable on the affected side. There might be only a very slight haziness or the appearance of light smoke or vapor in one of the apices. The appearance of the least under aeration in the upper lobes in patients under suspicion must be considered. Do not think it an easy matter in the earliest stages to say the patient is or is not tuberculous. You might say, if able men are uncertain why bother with the Roentgen rays? In that early uncertainty lies the best interest of the patient. When the lung condition is such that a plate is not needed, when the process is so far advanced that the fluoroscope reveals the pathology, the acute diagnostician needs no plates, except to show the extent of the invasion or complications. There is no rivalry between the fluoroscope and plates. The fluoroscope shows movement. The excursions of the diaphragm, the heart movements, the splashing free fluid, the partly filled abscess cavity, the expansile tumor over the aorta, are all seen on the screen. To distinguish a gland in the mediastinal from an enlarged aorta is best done with the help of the fluoroscope. We can turn the patient in all positions to throw the light between the parts. This could be done with plates, but the expense would be prohibitive. For early diagnostic conditions the plate is a necessity. Without exception, where the early condition pertains to the lung, the plates should be stereoscopic.

The early lung markings must be understood. What are they? I might answer that by asking, "What is a normal skin?" The skin of a young person is soft, smooth, feels like velvet, has a rosy look. The skin of an aged person is wrinkled, harsh, atrophied. They are both normal. The age, occupation and surroundings influence the lung markings. Occupational diseases may look on the plate typically of tuberculous markings, but the tuberculous clinical symptoms are missing. Syphilis may look like sarcoma on the plate and at times it is necessary to make a differential diagnosis by other means. Roughly speaking, age makes more harsh the lung markings.

Tuberculous Markings.—The roentgenologist is not to say whether the lesion is active. The clinician wants to know, first, is tuberculosis present? Second, what is its character, distribution and probable activity? If cavities are present, are they well walled with a dense fibrous tissue? If only an old cavity is pres-

ent that patient is as safe as the wall is dense. Of course, the length of life depends on the constitutional resistance. This becomes of importance when authorities on lung tuberculosis tell us that 100 per cent. of people are now or have at some time of their lives been infected with tuberculosis.

Roughly speaking, the upper lobe, occasionally the middle lobe, and practically never the lower lobes are involved. The bronchial markings are increased and lead to the lung mottling in the parenchyma of the lung. If the mottling is clean-cut the condition might be considered inactive. If there is a gradual fading into the surrounding tissue, activity is considered. Childhood tuberculous markings are peribronchial and glandular involvement about the hili. If the condition is clean-cut with outlines sharply defined we consider the condition inactive.

Heart.—The heart is examined for size, shape and inflammatory surroundings. The same holds good for the aorta. If the heart is hypertrophied or normal, the apex retracts and the size reduces as it contracts. The change of its position is due to the rotation on the great vessels. Shape and position vary with the patient's build. The position can be influenced by pleurisy with effusion, old chronic inflammatory changes, and congenital displacement. In effusions the heart outlines are obliterated. The pulsations are lost.

Lung Tumors.—Sarcoma, advanced, is seen as dense masses invading the lung tissue. The outline is sharply defined. Tumors are large—3 to 4 inches in diameter. The lung between the masses is normal. Pulmonary symptoms are missing unless disturbance is caused by pressure.

Carcinoma.—Carcinoma is usually secondary from a breast or prostate involvement. The beginning is at the hilus and radiates out to the periphery with a hazy outline caused by the congestion or pressure. A characteristic feature is the absence of mediastinal involvement, and is usually seen in lower lobes.

Pleura.—A visible pleura is abnormal. In a thickened pleura haziness is marked and when extremely thick it is impossible to distinguish from a pneumonic consolidation. Interlobular pleurisy is seen as a shelf between the lobes of the lung. Effusions into the pleura are easily seen. The upright position will show the fluid level. If the fluid is free, splashing can be seen.

Pneumothorax.—Pneumothorax is nicely seen. The lung markings are missing and the lung can be seen retracted. The retracted margin shows as a dense line.

Abscess.—Abscesses seldom reach the lung margin. However, it is at times impossible to distinguish between abscess and lobar pneu-

monia. If after coughing the part involved clears, we have to do with abscess cavity opening into a bronchus. Abscess cavities are capable of spontaneous cure if of short duration and the walls liquefy and are spat up. If of long standing, the walls become fibrous and the cavity is permanent.

Esophagus.—The esophagus is subject to disturbances which give rise to symptoms not always easily interpreted. Take, for instance, a patient suffering from pains about the mid-sternal region. Some cough with slight expectoration, regurgitation of part of the food, loss of weight, and a general feeling of distress after swallowing. We know there is an obstruction, but is it a gland? The condition is often a cancerous condition and is nicely seen.

Vertebrae.—The dorsal vertebrae are subject to conditions which make the patient miserable. The main symptom is pain. Atrophic and hypertrophic spondylitis may be present. Tuberculous destruction of the vertebrae is not infrequent. In curvature of the spine where the curvature is excessive pains are often felt on the lesser curvature just below the breast line. Here will be seen an overriding of the ribs, a frictional pain.

Foreign Body.—Foreign bodies in the lungs may be opaque or transparent to the Roentgen rays, but must be localized. If opaque, they are easily seen when the patient is placed in a position as to bring the foreign body away from the heart shadow. If transparent to the rays the resulting inflammatory congestion will be seen and the foreign body will be found at the handle of the fan.

Stomach.—A stomach is not thought of when we speak of the chest. Later I will show you how a stomach might complicate the chest conditions. Especially is this so in hernias of the diaphragm. Four patients have been referred to me for chest complications in the past year. Each had part of the stomach in the chest cavity.

Bronchiectasis.—Bronchiectasis is easily diagnosed. It has a Swiss cheese appearance and cannot be confounded with any other condition.

Influenza.—Uncomplicated influenza—please bear in mind the word uncomplicated—can be distinguished by the abnormally heavy bronchial marking; usually throughout the lungs, always bilateral and more decidedly marked in the lower part, diminishing in intensity from the bottom up. In complications the markings will take the character of the nature of the complication. To differentiate an influenza infection with apical bronchopneumonia from apical tuberculosis is difficult. The mottling is so much alike we must wait until the condition clears up before being able to

make a diagnosis. A helpful point is to remember that in tuberculosis the bronchial markings are confined to the affected lung, while in influenza the markings are throughout both lungs with the denser markings in the lower lobes.

Bronchopneumonia.—In bronchopneumonia there is an irregular, diffuse, peribronchial thickening, so that the individual bronchial outline is barely perceptible. These markings are seen about three inches out from the hilus. If these markings spread or become confluent the appearance is one of lobar pneumonia. It frequently happens that one portion of the lung becomes consolidated and if the condition grows worse, the next earliest change is seen on the opposite side extending out from the hilus as in the first infection. There is one sign which is fairly characteristic, the diaphragm on the affected side is higher than normal, while the reverse is true in pneumonia.

Lobar Pneumonia.—Lobar pneumonia, depending on the time examined, is usually definitely demarcated and limited to a lobe, outlined by the interlobular fissure. The greatest density is at the periphery.

Again let me say, the roentgenologist does not stand aloof or alone. Roentgen interpretation demands a knowledge of pathology and clinical medicine. The Roentgen plate may supply the data, but we see only what we have learned to see.

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X-RAY STUDY OF 500 MEDICAL CASES FOR PARANASAL SINUS INFECTION*

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In reviewing the literature on the X-ray study of the nasal accessory sinuses one finds that more comment and study has been given to the various technical positions in which the best plates are taken than to the actual diagnosis of the shadows cast.** True it is that we should ever endeavor to improve our technique, but during this age of focal infection eradication it may be best to content ourselves with the present knowledge of positions and bend every effort to the study and diagnosis of the resulting plates. As one of our eminent laryngologists has said, "The subject of accessory sinuses has become so extensive and so important from the standpoint of general health, that we must ever be on the alert for symptoms of sinus trouble, especially for

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**The data upon which this study is based was obtained from patients observed in the private practice of Dr. W. W. Duke, Kansas City, Mo. For the privilege of studying and reporting these cases I wish to express my sincere thanks.

those low grade chronic forms of inflammation so prevalent in many of these cells." He further gives his theory of the causation of sinusitis, stating: "Swelling of the mucous membrane within the nose quite frequently occludes the natural openings. The occlusion is soon followed by an absorption of the contained air, thus creating a vacuum. This leads to transudation of serous fluid into these cavities, as we often find in the middle ear. This fluid soon forms a favorable medium for the development of pathogenic bacteria, and then the trouble begins." Our observations would lead us to conclude that sinusitis is most often caused by the encroachment of a deviated septum on the normal drainage of the paranasal cells. This abnormality must be corrected and normal drainage established before a permanent cure can be expected.

Doubtless one of the best and most recently reported studies of this subject is given by Dr. Howard C. Ballenger. He gives us a complete study of 100 cases of suspected chronic nasal accessory sinus disease, with a report of the Roentgen findings in each case. Of these 100 cases clinically suspected, 28 had negative X-ray findings. All these cases were negatively confirmed by the author. He cites nine cases which gave positive X-ray findings, and which could not be confirmed by physical examination and further study. We might conclude, then, from his statistics that a thorough Roentgen examination will diagnosticate over 90 per cent. of the sinus infections. This is doubtless true, yet for the greatest benefit to the patient it is better to correlate the clinical with the Roentgen findings.

It is not my object to give a dissertation on the differential diagnosis of paranasal sinus infection, but rather to report to you a series of studied cases, the conclusions of which I hope will convince you of the great importance of a Roentgen examination of these cells.

For this study we used 500 consecutive cases which had been referred for X-ray examination because of suspected possible sinusitis. Each case received a thorough physical examination as well as laboratory tests. The basis upon which these cases were referred for X-ray examination was frequent colds, chronic colds, nasal discharge, morning headaches, history of nasal operation, deviated septum, obstruction to breathing, pain over sinuses, deformity of nose, crust formations, or dry mucous membranes. The Roentgen examination was made for the most part with one plate taken in the forehead-nose, or Caldwell position. In doubtful cases the patient was subjected to anterior-posterior, stereoscopic and lateral plates. The stereoscopic pair was made in the following way: The first expos-

ure was taken in a direct anterior-posterior position, then the tube was shifted to the right for the second plate. This second plate then gives an A-P view of the sphenoid cells which are superimposed in the left orbital fossa.

The study was carried on with a view of ascertaining the percentage of patients seen in a private consulting practice who showed Roentgen evidence of a sinus infection. All these cases were suffering with one or more maladies, many of which showed positive Roentgen findings of sinusitis but gave surprisingly little clinical evidence of it. In fact, some were under treatment of capable laryngologists who were totally unaware of the true condition. Although this series was studied by me chiefly from a roentgenological standpoint, yet in a large percentage of these cases the diagnosis was proved clinically or by operation.

The study offers the following data:

Number of cases referred for X-ray study	500
Negative X-ray findings.....	361
Some form of positive X-ray findings..	139, or 27%
The positive findings may be subdivided as follows:	
Clouded frontal cells.....	60
Sclerosed frontal cells.....	51
Clouded ethmoid cells.....	42
Clouded antra.....	18
Frontal polypi.....	6
Clouded frontals and ethmoids same side	34
Clouded frontals, ethmoids, and antra of the same side.....	3
Congenital small frontal cells.....	26, or .05%
Congenital absence of frontal cells on one side	34, or .06%
Congenital absence on both sides.....	7, or .01%
Isolated frontal cells.....	3, or .006%

Then we wanted to compare the value of a routine clinical examination of these cells as made in the consulting office versus the Roentgen examination. For this study we selected a number of cases who roentgenologically had positive findings of sinusitis. The physical examination and history of these cases were checked giving the following data:

By History:

Cases giving direct history of sinus trouble, 11 per cent.

Those giving indirect history of sinus infection, 58 per cent.

Patients giving no sinus history, 31 per cent.

By Examination and History:

Cases clinically diagnosed, 29 per cent.

Cases with strong clinical evidence, 48 per cent.

Cases with very little clinical evidence, 23 per cent.

In tabulating this series of cases, I have differentiated between two types of infected cells—namely, the cell which is uniformly clouded and has a hazy cell outline. These cells represent the acute or chronic purulent type of in-

fection. The second type or the sclerosed cell is that sinus which is or has been the site of a purulent or non-purulent infection and at the time of the examination has a thickened mucous membrane which gives a uniform hazy shadow in the anterior posterior position and almost a negative cell shadow in the lateral. This type of cell corresponds to the pansinusitis described by the laryngologists. These cells are very often passed as harmless, but our experience has caused us to look upon these sinuses with grave suspicion. When these cells are opened and aerated little is found, but the relief of the symptoms is marked. The following history is typical of such a case:

Mrs. H., aged 35, has been troubled for the past two years with general headache and visual disturbances. No history of acute sinusitis. The physical examination was practically negative as were also the laboratory tests. On roentgen examination the teeth showed some sepsis. The sinus examination revealed a sclerosed right frontal cell and the right ethmoid was clouded. The oral sepsis was eradicated, but little if any improvement was noted. The case was then referred to a laryngologist for special examination, and upon his advice the infected cells were opened through the nasal cavity and aerated. Little positive evidence of an infected sinus was found, yet this patient had almost immediate relief of the headaches and the eye symptoms are rapidly clearing.

Conclusions.—1. That a Roentgen examination of the nasal accessory sinuses should be made in every case of suspected focal infection, who gives a history of frequent colds, chronic colds, nasal discharge, morning headaches, nasal operation, obstruction to breathing, pain over sinuses, crust formations, or shows on examination deformity, deviated septum, or dry mucous membrane.

2. Many obscure cases can be diagnosed by the X-ray which would not ordinarily be found by clinical examination alone.

3. Some cases have been found by the X-ray which could not be proved clinically, but after treatment or operation have given wonderful results.

4. That approximately 27 per cent. of patients seen in a private consulting practice have or have had some form of sinus infection.

5. That approximately 6 per cent. of patients seen in a private consulting practice have an active sinus infection.

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SPIROCHETICIDAL VALUE OF DISODIUM ETHYL ARSINATE (MON-ARSONE).—Experiments were carried out by Henry J. Nichols, Washington, D. C. (*Journal A. M. A.*, May 14, 1921), to determine the value of disodium ethyl arsiniate or mon-arsone, in syphilis, its actual effect on *Spirochaeta pallida* and experimental lesions. They show that the spirocheticidal value of mon-arsone is too small to warrant any practical use of this compound in human syphilis.

DISTURBED PITUITARY FUNCTION ASSOCIATED WITH SPHENOIDAL SINUS ABSCESS*

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In the pituitary gland there are centers for the regulation of growth-symmetry and for regulation of metabolism in some of its most vital phases. This we have come to admit with reluctance because it was difficult to conceive that functions so essential to life could be located in so inconspicuous an organ. But for a considerable period of time the evidence supplied us by investigators has been accepted as sufficient.

Its location on the underside of the brain cavity removes the pituitary to a position as remote as possible from the accidents of trauma or infection. But even in this protected location size distortions can occur. While some observers report manifest dysfunction of the gland in the presence of an hypophysis seemingly almost normal in its anatomy, the most common report is that of dysfunction in one or both lobes in the presence of size changes. Size abnormalities may be tumor-like or otherwise.

Profound changes, either rapid or slow, can occur in the brain with no clear disturbance in the function of the pituitary body. Nasopharyngeal congestions and inflammations seemingly seldom cross the protecting meninges of the brain. Widespread meningeal involvement over much of the brain's surface is the usual thing where the barrier of bone and membrane has failed to keep back the bacteria invading from the nasal mucous membranes. Moderately definite manifestations of pituitary dysfunction, clinically, with brain and meninges normal, post-mortem, and the presence of an abscess in the sphenoidal sinus, speak for the reaction of the hypophysis to an inflammation closely adjacent. Reports of cases in which this condition was present seem lacking in the literature, or at any rate are very rare. It is such a case as this that I have to report.

The records show that on February 16, 1921, O. M., a laborer, 48 years old, walked into the receiving ward of the Kansas City General Hospital and asked to be admitted. He was sent to my service in medicine with a tentative diagnosis of tabes with gastric crises. He said he had no pain but felt in some way wrong, occasionally vomiting, moderately dizzy and had peculiar tingling sensations in the hands and feet. Preliminary examination failed to establish the diagnosis of tabes, or of any other trouble definitely, except an increasing weakness and acidosis. On the morning of his sixth day in the hospital he was found dead in bed.

Family History.—The family history contains nothing

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ing that bears upon his illness. American, born of German parents in Wisconsin.

Past History.—He has been well and strong most of his life, always able to do hard work. He had typhoid fever twenty years ago and admits a chancre fourteen years ago. He had epidemic influenza one year before his present illness. There is no history of any special nasal, respiratory, nor cardiac disorder. For several years there have been occasional mild spells of causeless vomiting. There is no history of accident, operation, nor drug addiction.

Present Illness.—For eleven days he has not been at work but has not been very sick. At first, he thought that some indiscretion in diet was the cause of his vomiting and took a dose of calomel.

Physical Examination.—Patient is well nourished. The skin is smooth and without eruption. His hands and feet are large but not grotesquely so. His jaw is square and his cheek bones are high. On the second day, I made a hasty examination of the case. The patient arose and stepped out to the side of the bed almost briskly, for a Romberg test. The test was negative but in spite of the quick movements the man seemed sick.

Eyes.—No exophthalmos nor strabismus. There is a slight nystagmus. Pupils are unequal in size—the right larger than the left. Both react to light and to accommodation. There was definite complaint of restriction of the visual fields on the temporal sides. The diagnosis of bilateral hemianopsia is based on the patient's statement alone.

Ears.—Negative.

Mouth and Throat.—Teeth show pyorrhea alveolaris. Many decayed teeth. Breath stale and suggests acidosis. Tongue shows a coarse tremor. Pharynx red. Tonsils somewhat hypertrophied.

Chest.—Expansion good. Fremitus and breath sounds normal.

Heart.—Heart borders normal. Heart sounds are somewhat distant—no murmurs heard.

Abdomen.—Below the costal line no rigidity, tenderness nor distension. Liver, spleen and kidneys not palpable.

Extremities.—No scars nor edema. Patellar reflex practically absent. No pathological toe signs.

Temperature normal except one-half degree on his last day.

Laboratory Findings.—Urine: Negative.

Second examination: Sp. grav. 1015; albumen, trace; sugar, negative. A few hyaline and granular casts.

Blood: Leukocytes 7800, Hb. 90 per cent. Wassermann test negative.

I was asked by the interns to look at the patient the day before he died. He was quite content to lie quietly in bed. There seemed no sufficient reason for a spinal puncture and in abandoning the diagnosis of tabes, Dr. Schneiderman called attention to the more than slight acromegalic cast of the features and extremities. There was no manifestation of acute nor chronic nasal trouble noted. The breath was foul toward the last, but there was no nasal discharge nor other sign of irritation. The pulse had not been feeble enough to cause comment by nurse or intern.

Autopsy Findings.—Autopsy was done by the hospital pathologist. His findings are summarized briefly as follows:

Lungs, liver and alimentary tract practically normal.

Heart slightly enlarged. Myocardium is flabby and of a light yellowish color. The muscle is so soft that it does not keep its form and the heart is collapsed and shapeless.

Kidneys are slightly enlarged and show evidence of cloudy swelling.

Spleen is soft and friable.

Brain and meninges are normal.

The pituitary body is negative grossly.

On opening into the sphenoidal sinuses we find them to be filled with a dirty, thick, foul-smelling material. The surrounding bone is hard and thickened. The openings into the naso-pharynx are occluded by the indurated and swollen mucous membrane. We find the same condition in the ethmoid cells.

Anatomical Diagnosis:

1. Congestion of the lungs (slight).
2. Myocardial degeneration, toxic.
3. Acute toxic spleen.
4. Cloudy swelling of the kidneys.
5. Empyema of the accessory sinuses.

Cause of death—myocardial degeneration.

Microscopic examination: Pituitary body, increase in fibrous tissue. Congestion. Mild inflammation. Areas of lymphocyte infiltration.

Optic nerve. Increase in connective tissue.

Heart. Pigment and fat globules in muscle fibre.

The post-mortem finding of an unsuspected abscess involving the sphenoidal sinus was a surprise. Were the signs of dysfunction of the pituitary body the result of this abscess-like condition? There was a history of influenza a year before during the epidemic of "Flu." It would require at least one year for the acromegalic changes to assume the rather definite form that our case presented. Abscess conditions no doubt had from time to time initiated low grade inflammatory disturbances in the hypophysis. Such inflammation existed at the time of death, as was shown by the sections that were made.

Some difference of opinion arose over the relation of the terminal breakdown of the heart muscle to the other conditions. Our pathologist held to the view that it was the direct sequence of abscess conditions in the nasal sinuses. Another point of view was that the fatty degeneration of the heart muscle resulted directly from over-secretion by the inflamed pituitary gland itself.

The inflammatory condition found in the accessory nasal sinuses was of such low grade that the pathologist felt reluctant to use the term "abscess" as implying too acute a condition. Just such grade of inflammation however could cross the thin bone and stout meninges without causing more than slight local inflammation of the pituitary body and without causing apparent change in its size—and this we found to be the case. That we were dealing with a pituitary body whose dysfunction arose from disorder in the closely adjacent sphenoidal sinus seems very clear to me. Considering how closely the hypophysis is watched in post-mortem work, it is most unusual that similar cases are almost wanting in the literature. Such a condition is so rare that it is reported with diffidence. My aim in reporting the case is rather as an accurate statement of my findings than an ingenious interpretation of them.

**STATUS LYMPHATICUS AS A FACTOR IN
NOSE AND THROAT SURGERY***

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There is a widespread impression among the laity as well as the general medical profession that the tonsil and adenoid operation is an office operation and therefore a procedure of little consequence. Our chief concern in the past has been that of hemorrhage, but with the increase in pre-operative care and better technique in handling tonsillar fossae in reference to the bleeding points, few hemorrhages are seen when one considers the vast amount of tonsil and adenoid work done over the country.

It is the purpose of this paper to emphasize a condition of physical make-up which anyone operating in the naso-pharynx is apt to meet—namely, status lymphaticus.

We had in our student days lectures on lymphatism, or the scrofulous diathesis, being told of the great vulnerability of the system to anesthesia and other strains, but sufficient emphasis has not been put upon the particular strain under which a lymphatic person is put when the naso-pharynx is being worked upon.

In looking over the fatalities that have occurred during tonsil and adenoid operation, I have noticed that there has been a peculiar tendency of the profession to lay the blame on the anesthetic.

In some cases undoubtedly there has been an idiosyncrasy to the anesthetic, but no culpability should be given to the anesthetic unless there is an absence of status lymphaticus as evidenced by a complete post-mortem.

Douglas Symmers shows by statistics that in over 80 per cent. of the cases of sudden death, where the provocation was slight or trivial, status lymphaticus was found post-mortem.

It is not the purpose of this paper to go into the minutiae of the subject, but merely to touch upon its clinical aspect. I feel personally that there is more than one factor called into play when a death occurs during the tonsil operation, especially when status lymphaticus is found on the post-mortem table.

A number of times just prior to the removal of the tonsils, I have seen children stop breathing upon the introduction of the mouth gag. Some authors attribute this to the jamming of the lower jaw against the hyoid. I wonder if this is not an inhibition reflex from the fifth to the pneumogastric? Let us go into the subject of the vulnerability of the system and see how status lymphaticus operates clinically.

Status lymphaticus is very frequently combined with an overgrowth of the entire

lymphatic system, tonsils and adenoids being very frequently enlarged. The spleen is enlarged; sometimes the thymus is enlarged, and then the condition is known as status thymolymphaticus. There is a diminished caliber of the arteries and aorta. This pathology is peculiar to the lymphatic habit. Such patients have a diminished resistance. They are more vulnerable to and stand a good deal less than others in bacterial and other influences. Their nervous system is impaired, their cardiac function is easily stopped and death from cardiac paralysis in such cases is frequent.

A latent thymus hyperplasia may exist; unfortunately, sudden death is sometimes the first symptom which reveals the latent form of the disease and in a great many cases this unsuspected condition is revealed only at autopsy.

I have in mind those cases of sudden death occurring during some intense nervous excitement, such as in the sexual relation or those of sudden exitus just before or during anesthesia and those of sudden denouement following a cold bath, etc.

In this respect Recklinghausen's case is an extremely interesting one. It was that of a boy who had fallen from a boat into the river, but was rescued at once before he had time to swallow any water, yet when he was taken out, he was dead. Post-mortem showed status lymphaticus.

E. L. Rice reports a case of a male dying after an injection of typhoid vaccine; a definite diagnosis of status lymphaticus was made post-mortem. Other members of the corps were unaffected fatally.

The young son of Professor Langerhans of Berlin died suddenly after an injection of diphtheria antitoxin; post-mortem showed a well-marked case of status lymphaticus.

Hassler cites a seven-year-old child who was given a prophylactic dose of diphtheria antitoxin, and died in a few minutes; his sister had 3,000 units of the same manufacture and no fatality. Post-mortem showed status lymphaticus. Douglas Symmers states that status lymphaticus lowers the threshold of the power of fighting infection, particularly those infections that come through the throat and intestinal tract. He also states that life may be terminated on apparently the most trivial provocation.

He describes the angel type of child, first described by the Elder Gross as being delicately molded, beautifully proportioned, blue or brown eyed, with long lashes, finely chiseled features, transparent cheeks and rapid changes of color, thin lips, smooth skin and silk-like hair, shapely limbs and graceful movement of the body, narrow-waisted, mentally alert, often precocious in mental development; a thing of beauty but often lacking in the full promise

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of life. Still other children with status lymphaticus may be very coarse in their features. In a cursory search of the literature I find that seven cases of so-called ether deaths were in fact shown to be status cases. Chloroform was the anesthetic in ten cases that status was found post-mortem. The use of local anesthesia in tonsil work does not seem to safeguard one as is seen from quite a few deaths which are reported due to status lymphaticus done under novocain and other local anesthetics.

What theory or theories may be advanced for the peculiar susceptibility of status cases to death in throat operations? I believe that inhibition from the fifth to the cardiac inhibitor fibres is one of the most frequent causes of death, and in the presence of a weakened system the heart collapses.

I am sure that I cannot do any better than to quote a few excerpts from the excellent monograph of Geo. Dock on the thymus gland, who quotes theories as to the cause of thymus death.

Paltauf calls it a constitutional condition. This as Dock states would not explain the fact that sudden death is not more frequent, considering the number of people that have enlarged thymus, in connection with large thyroids.

Wiesel and Hart on the other hand have observed that the mechanical theory does not explain certain cases of sudden deaths in adults or large children, or in diseases not serious enough to cause death. The explanation made by Wiesel is a non-mechanical one, that of lowered blood pressure, vascular and cardiac paralysis from hypofunction of the chromaffin system. This theory while plausible is as yet insufficiently confirmed.

The work of Neusser, Eppinger and Hess seem to bring out the fact that the thymus furnishes a hormone antagonistic to that of the adrenals. However, a death reported by Hedinger showed the chromaffin system to be normal.

Mechanical pressure by the thymus was at one time considered an occasional cause of death, there being less feeling now than formerly, especially since the work done by Friedleben. Many cases have been reported without any apparent enlargement of the thymus. In some cases the thymus has been sufficiently large that in its excursion upward, a constriction of the trachea would be possible and could cause asphyxia.

I have been unable to find in the literature diagnostic methods that would enable one to uncover possible latent cases of status lymphaticus. However, with the history of an occasional attack of dyspnea coming on during sleep, or during the crying spells that accom-

pany hunger or pain, one would be justified in suspicioning a form of status known as thymic-tracheo-stenosis.

This condition is often brought about by the hyperextension of the head during crying spells. It evidences itself by the eyes rolling upward, face and especially the lips and tongue becoming swollen and cyanotic, veins of the neck becoming congested, a loud stridor being present and all the accessory muscles of respiration being called into play. Some of these cases will recover spontaneously; it is in the cases where these attacks happen frequently that a mistake in diagnosis is apt to be made.

Crotti explains that there are two methods of compression of the trachea; one in children occurs in the superior opening of the thorax and is caused by the ascent of the thymus upward on the trachea. During the hyperextension of the head this aperture is made smaller. The second method of compression occurs in adults. On the left side of the body the thymus is intimately concerned with the innominate and common carotid arteries, and here in a swollen condition press on the trachea and on the inferior laryngeal nerve. This may account for some of the mysterious deaths during anesthesia in adults. Crotti also says that he is reasonably certain that these choking spells, with death, are associated with a laryngo-tracheal reflex which may inhibit an already unstable cardiac apparatus. He asserts that all status lymphaticus individuals are vagotonic, which is evident by their perspiring freely, their easily disturbed respiratory rhythm, low blood pressure, and hypotonic arterial system.

The diagnosis of thymico-status-lymphaticus is easily made if the thymus is found enlarged by X-ray, palpation and percussion, but it is a very different matter if the thymus is not enlarged. However, with a history of choking spells and certain physical characteristics mentioned in the foregoing, one might be sufficiently warned in these cases.

A differential diagnosis in those cases of disturbed breathing sums itself up in the following conditions:

Congenital malformation of the vestibule of the larynx, which shows up immediately. Difficulty is had both in inspiration and expiration, the diagnosis being made by the mirror.

Tracheo-bronchial glandular enlargement comes on gradually; as the child gets older there is a bi-tonal voice; enlargement of other glands and an occasional positive X-ray will help one.

Adenoids are easily diagnosed and need no remarks.

Retro-vertebral abscess diagnosed by the po-

sition of the head, history of trauma, comes on later in child life.

Acute laryngitis diagnosed easily by the hoarseness of the cry and the use of the laryngeal mirror.

Laryngismus stridulous usually has a period of attack and the little patient then breathes normally; the presence of Erbs, Chvostek and Trousseau phenomena will help one to make a diagnosis.

Conclusions.—As status lymphaticus is frequently associated with tonsillar hypertrophy one should be rather chary and submit each case to a complete physical examination.

In the presence of enlarged cervical glands associated with a lymphocytosis, with other presumptive signs, warning of this condition should be in mind.

Muscular weakness in an otherwise healthy looking child or adult is also an omen of a possible vagotonia.

Inasmuch as these cases are not likely to stand operative shock, I believe it is a good idea to inject morphin and atropin in each tonsil and adenoid case, whether you do the operation under local or general anesthesia.

Our present knowledge of status lymphaticus does not preclude one having a death where every possible safeguard has been thrown around the patient.

Wall Bldg.

FACTORS OF SAFETY IN SURGERY*

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Popular current literature devotes a surprising amount of space to science. A subject even as highly technical and complex as relativity was so freely explained in literary magazines that it became almost comprehensible. He who runs may read any amount of natural philosophy, presented in delightfully intelligible form. Various phases of medical science have been popularized to the point of instructing intelligent laymen on matters of general health. Surgery, alone, has been unusually timid in making her bow to an eager public. 'Tis a bold surgeon, indeed, who attempts to popularize his craft in the face of the fact that to the public at large, surgery connotes the knife, blood and pain. And yet this very misconception is all the more reason why people should be set right. So few laymen realize how safe, yes—how painlessly safe—modern surgery is; and yet such realization would tend to spare so many moments of unnecessary suspense and mental torture, that it would seem far from a task of supererogation

to explain the factors of safety which fortify surgically sick patients and surgery herself.

What are factors of safety? An astutely intelligent friend, a mechanical engineer as it happened, when asked what the phrase, "factors of safety," meant to him, promptly answered, "Seven to one, and if we do not build them that strong they are not safe." However as surgeons, we deal not with steel or timber or concrete; we cannot measure by sine, cosine and tangent, we cannot express stress and strain by any such formula as seven to one, but happily we can conserve the comfort and energy and vital force of our patients by adopting methods approved by experience, and by avoiding procedures likewise disapproved. The phrase "factors of safety" as applied to surgery, embraces the application of all known methods directed against exhaustion, exposure, infection and hemorrhage. This does not simply mean that surgeons must command a safe and sure operative technique—far from it. They must possess such intimate knowledge of disease in general, and of the patient in particular as to be able rationally to determine if surgery is indicated, and then to apply the proper painstakingly acquired technique. Skillful operating is only one of the many elements that we must consider under the head of factors of safety.

The first important realization to come to is that surgery does not mean merely to operate. Strange as it may seem surgery does not mean to surge—it does not mean to slash with a knife and spatter with blood. Its derivation would signify that it means to work with the hand (*cheir*—the hand, and *ergon*—to work), but it does not mean this in fact or in truth—it means to work with the *brain*, and a surgeon's most brilliant cure may be wrought independent of anesthetic, operating room or knife. Surgery and its specialties differ from medicine and its specialties only in that surgical treatment happens to be predominatingly operative. Since we are defining terms still, let us cling tenaciously to the concept that surgery embraces the study as well as the treatment of disease, and let us not be blinded by the glitter of melodramatic operations.

Clear in our minds as to just what we mean by the terms *factors of safety and surgery*, let us look a little further and determine what some of the elements are that make surgery safe. Of all, let us place foremost those factors which make surgery a co-operative science. In order to be clear on this point let us glance at a flash picture of the surgeon as he was long ago. These surgeons can be best described by saying that they were not surgeons. Their relationship to surgery as we know it, was about that of the army mechanician to the army transport corps, as interpreted

*Public Lecture delivered in the series of popular lectures held under the auspices of Washington University, 1921.

by a negro chauffeur private that once drove me. The engine was knocking badly and I asked him if it always knocked. "Not always, sir," he responded, "but mostly always." "Why should that be?" I asked. "I dunno, sir, but I knows dis, dat if dey let me tend to dis cyar it wouldn't knock, but de army don't let us boys tend to de cyars, we got to take dem to headquarters where dey has a lot of mechanics." His pride seemed wounded, so I said: "Well, now, don't you think it a good idea to have the cars attended to by mechanics?" "Yas, sir," he retorted, "it would be a good idea if dey *was* mechanics"—and so it was with the surgeons of long ago, they were *not* surgeons. They were barbers—barbers of two types, the so-called barber-surgeons who wore long robes and confined their efforts to tonsuring, shaving and leeching, and the surgeon-barbers or surgeons of the short robe, who actually performed operations. Both the barber-surgeons and surgeon-barbers were looked down upon by physicians as practitioners of a handicraft degrading and unworthy. It was only after nearly a century of struggle that surgeons won their spurs and established their equality with physicians. This struggle was not only long but also bitter, and although over three centuries have passed since those days, we still have as a quaint relic of the dispute, the refusal of the English surgeon to adopt the title of doctor. He is always "mister" and he insists on this, not with the idea of keeping an old slight fresh, but rather in the mildly sweet spirit of saying to the physician, "Now that we are truly brothers, a fig for your title; we'll stick to simple plain mister, which shall be for us our sprig of rosemary for remembrance."

With the establishment of equality between physician and surgeon, it soon became apparent that medicine and surgery were co-equal handmaidens to health, and that health was best served when co-operative effort was strongest. Gradually specialties developed, some of them offshoots of medicine and some of surgery. These specialties dovetailed their efforts with the mother sciences, and thus there was established the basis of what many patients today querulously due the cursed custom of referred consultations. But it is this very development of multiple counsel that serves as one of the greatest factors of safety in surgery. Old Davy Crockett's axiom, "Be sure you're right, then go ahead," holds unequivocally true for surgery; and nothing so strongly safeguards the surgeon in being right as the close relationships which he recognizes, or at least should recognize as existing between surgery and every other branch of medicine.

We will all grant, I am sure, that a factor of safety of this sort is at best an intangible

entity, but I am equally sure that all will accept the truth that in medicine or surgery the intangible has real weight and force. We have learned to our sorrow, how correct Bismarck was when he stressed the importance of the imponderables in successful statecraft.

There are other intangible safeguards to mention—safeguards that many people have either not thought of at all, or have thought of as agencies of personal comfort rather than as indispensable links in the surgical chain by means of which they are towed to health.

Call to mind your first reading of Martin Chuzzlewit, hold in your mind's eye the tippling, ignorant, incompetent Sairey Gamp, and then rapidly review all that you know of nursing from the days of Sairey down through the trying period of the Crimean war when Florence Nightingale established a nursing epoch, to the present time of the registered nurse, with a training so substantial that it calls constantly for more light and broader fields to conquer. Think finally of our present-day nurse in the lines of the poet Henley:

"As sweet as sunset almost over past,
Kindly and calm, patrician to the last,
Speak Latin with a right accentuation,
And gives at need (as one who understands)
Draught, counsel, diagnosis, exhortation."

Can one, in this frame of mind, fail to realize what a real factor of safety the modern nurse is in our day of surgical need? One may with near truth paraphrase Peter Finley Dunne and say that it doesn't make much difference whom you have as a surgeon, provided you have a good nurse.

And while this developmental training of the nurse has been going on, surgery has been profiting by other even more satisfactory educational advances. It is not possible within short compass to detail the high standards set for our present day medical student, by the better medical schools of all countries. It will suffice to say that his premedical education is carefully prescribed and controlled, his medical course laid out for him with high vision, and finally that he himself is practically forced by convention, and in some of our states actually forced by statute to serve an internship in a qualified hospital, before being licensed to practice. This may not signify all that it should, but it will take only a moment's thought to realize what your own choice would be if you had to elect as your young surgeon a man who qualified for his work through an apprenticeship, as was the custom long ago, or through a one, two or three year medical course, as was common almost up to two decades ago, or through a highly perfected discipline extending over a period of five to seven years.

This modern day intensive training of nurse, medical student and hospital interne may be

an intangible something in so far as it associates itself in the average lay mind with the very concrete topics of surgical disease and surgical operations, but it is true that the prescient surgeon places his strongest reliance on the support furnished him by a properly trained personnel. It constitutes his real strength, his check and support, and he comes to regard it as one of surgery's greatest factors of safety.

Just at this point it is not without interest to mention the growth and development of a new agency in American surgery, which directs its energies toward emphasizing the necessity of high professional, academic and moral qualifications in surgeons. This agency, now in its infancy, and still subject to some of the vicissitudes of early life, is the American College of Surgeons, a body of men associated much after the fashion that binds together the Fellows of the traditionally venerable and much respected Royal College of Surgeons of England. Men may become Fellows of the American College of Surgeons only after demonstration of adequate qualification and it is only a question of time when this group of men will so unequivocally represent the best in American surgery, that any layman may pick his surgical advisor from its roster with perfect confidence.

When we approach the more concrete elements of safety in surgery, those that do not rest on purely educational requirements, and do not require an effort of mind in order to be translated into benefits accrued we find that surgery fairly bristles with just such factors.

Let us see for example how we profit by the restless, ceaseless tendency of surgery to acquire from her sister cognate sciences, and to apply her new acquisitions. From physics surgery appropriated the X-ray, thus safeguarding the course of healing of every fracture, confirming the diagnosis in innumerable surgical diseases, and offering a curse in some and immeasurable God given relief in many other cases of malignant disease. From electricity so much has been appropriated that we are forced by time limitations to select just two, the electric magnet which removes metallic foreign bodies that formerly could be removed either not at all, or only by a more or less formidable surgical operation, and the electrocardiograph, an application of the string galvanometer principle, which permits most accurate interpretation of heart action, function and disease. Used chiefly by the internist, this instrument serves nevertheless in many instances as an invaluable aid to the surgeon in measuring the reserve force of his patient. Physical chemistry has utilized radium both as a means for upsetting everything we thought we knew about atoms and molecules, and also

as a means for making some of us older ones thankful that we are not studying chemistry today. Surgery eagerly seizes these new facts. She tries out, in her own workshops, the various rays as they are discovered, with the beneficent result that humanity is safeguarded against mutilation, or shielded from suffering, in countless instances. The physiologist determines the cell content of the blood. The clinician studies these cells as influenced by disease and establishes thereby certain criteria which lead him in many instances to conclusions as to whether operative methods must be resorted to or not. Based on more intricate studies of the blood by the physiologist, the surgeon has perfected methods of transfusing blood from healthy individuals to others who are seriously compromised. This safeguard of transfusion represents a surgical victory of supreme importance. The chemist analyzes the various glands of the body, and when as a result, chemistry announces the discovery of some specific substance, surgery immediately appropriates and applies the new fact in the hope that the domain of the knife may be further restricted. The science of optics have been levied upon until surgery has secured for herself an optical armamentarium of uncanny possibilities. The ophthalmic surgeon peers through the pupil of the eye and reads from the retina data that enables him to say the patient has a brain tumor, nephritis, one of a dozen other diseases, or happily, that nothing is wrong and the much dreaded operation under contemplation need not be performed. The urologist with his slender telescope orients himself as perfectly regarding the inside of the bladder and kidneys as if these organs were exposed to the light of day, thus making diagnostic doubt minimal and operative assurance doubly sure.

It would be possible to detail, one after another, surgical factors of safety until reiteration would lead to monotony. The end result of an illuminating enumeration of this sort might be the offices of surgeons crowded with nervous pilgrims, seeking in these havens safety from the dread hazards of good health. Lest present day surgeons profit too much, it is well to understand that the usual arrogance of modernity is responsible for an outline of all these modern advances, classed as safety factors. Those surgeons who possess historical perspective and a fittingly reverential sense of the past are never unmindful of the fact that they build only on the solid foundations laid by their surgical forbears.

The old and almost forgotten nestors of surgery have done even more than their part to hedge our science and art with safety. Just for the sake of a beginning not too remote, let us start in the 16th century and imagine our-

selves on one of the battlefields of France during the war of Francis I with Charles V. At this time people bled to death, just as they do today, only they did it much more frequently. In other words, the ligature had not been discovered. It was the custom in those far-off days to check bleeding by immersing the bleeding member in boiling oil. On our battlefield, Ambroise Paré, one of the army surgeons of France, is traveling in the dark of night, followed by an attendant carrying a lantern and a pot of boiling oil. To his horror Paré discovers that with scores of wounded still untreated the supply of oil has run out. He adopts the recourse of tying bleeding vessels with a bit of string and bandaging the wounds without the merciless application of boiling oil. His work finished Paré goes to his quarters and attempts to rest, but so tortured is he by fear of the consequences of having failed to cauterize the wounded of the night before that he arises and visits them. To his unutterable joy he finds them more comfortable and in better physical condition than any other group of unfortunates he had ever treated. Thus the ligature was born; Galen had described the ligature in the second century, but strange to say it had never been really used until Paré applied it that eventful night on the field of battle. The ligature makes surgery not merely safe but possible. Without it, today, the most intrepid surgeon would quail before the performance of almost any minor operative procedure. It has become so indispensable to life itself that we think about it as little as we think of the air we breathe.

And thus it is also with another indispensable aid to surgery—an agency without which surgery in the real sense would not only not be safe, but also not even conceivable. I refer to anesthetics. Anyone visiting a certain one of the operating amphitheatres of the Massachusetts General Hospital of Boston, will see two very large hooks bolted into two newel posts. These hooks were used as anchors to which ropes were attached and made fast to the patient to be operated upon, so as to assure his remaining reasonably fixed during his writhings of pain. In 1846 in this very operating theatre Dr. John Collins Warren, for the first recorded time in history performed an operation on an etherized patient. As the patient slowly returned to consciousness, Dr. Warren exclaimed, "Gentlemen, this is no humbug." It is not possible to detail the highly interesting facts associated with the history of the discovery of ether, or of the somewhat later discovery of chloroform, but surely no word of emphasis is necessary to make clear what the profit has been in human life from anesthetics. Despite their boon, neither ether nor chloroform are universally safe.

When it is not possible to use them, surgery does not find herself helpless; for it is still possible to sidetrack pain by the use of local anesthesia (the injection of cocaine or similar drugs into the tissues) or of spinal anesthesia (the injection of these same drugs into the spinal canal). The old story therefore of the patient tied to the operating table, racked and quivering with pain and fright, and finally lost, a sacrifice to exhaustion and shock, is forever removed from the list of surgical disasters. Against such tragedies, thank Heaven, we are safeguarded.

When we contemplate that so much pain and suffering were instantly wiped out only seventy-five years ago, never to return, we seem almost to touch the hems of elfs and fairies. Such things rarely happen, save in dreams, and yet a bare half century ago surgery awakened to the realization of an even fonder dream, and set in place what all of us must regard as the very cap sheaf of all the factors of safety. Through the combined studies of Louis Pasteur and Lord Lister it was established that wound infection was due to contamination with dirt, and that operative wounds would heal kindly if the operation were performed with proper precautions. The keystone of these precautions was surgical cleanliness—what is known in medical parlance as antiseptics and asepsis. The result of the practice of these methods has been the conversion of large hospitals such as our civil war hospitals, from veritable charnel and pest houses into institutions where post-operative infections occur with a rarity almost incredible. Before the work of Pasteur and Lister 66 per cent. of all patients who suffered from compound fracture died. Today less than 1 per cent. of these patients die. Before 1867 abdominal surgery was unthinkable. Need one say any more to emphasize the rôle that asepsis plays as a safeguard in surgery?

Or need one go any farther afield in tracing the thousand and one ways in which surgery safeguards her art? Hardly—and yet, sooner or later, the average person comes to the realization that for him individually there is but one factor of safety, namely, his own surgeon. He will ask himself, "What manner of surgeon shall I select to most certainly protect *me* against surgical hazards?"

He must be a man whose training has been adequate, whose energies are boundless and radiant, spirit buoyant, ideals high; who thinks well of his associates, and whose associates respect and think well of him; who has the gift of forming his judgments quickly on rational premises, and who never changes these judgments except for logical reasons; who considers man as the noblest work of God, and who, therefore, regards an unwarrantable dis-

turbance of this handiwork as unholy mutilation; who relegates mere manual dexterity to its proper sphere, yet spares no effort to make his hands the nimblest and most dexterous servants of his brain; who worries about his patients just as long as the worry ferment brews constructive thoughts that will aid in a cure; who will heed Dr. Stephen Paget in his counsel to "pray to the gods for a fair measure of the love of science, a good memory, a quiet manner, the accurate use of your hands and your senses, the necessity of making money. Pray even for opposites; for humility and pride, for plodding business ways, and for the wings of ambition, for a will both stubborn and flexible, and above all for that one gift, which has been the making of the best men in our profession, the grace of simplicity of purpose."

But even that type of surgeon cannot combine all the surgical factors of safety. There remains still one factor over which the surgeon has slight and the patient has or should have complete control. The factor is the patient himself. This is exquisitely a world of compensations; everything is paid for to the last farthing; for laughter there are tears; for pride humility; for joy, sorrow; for doubt, assurance; and surgery, beneficent, dramatic, transforming surgery only too often exacts her toll of anxiety, craven fear and shattered spirit. It is all so natural that surgeons expect it, and yet, were such things measurable, the surgical fraternity could show that no one factor is more desirable than a bravely confident and trusting patient.

"Life is mostly froth and bubble,
Two things stand like stone,
Kindness in another's trouble,
Courage in your own."

A CASE OF ADULT POLIOMYELITIS WITH RESPIRATORY PARALYSIS*

R. P. DORRIS, M.D.

JEFFERSON CITY, MO.

This case is reported not because of its rarity as a definite medical entity but rather because of certain unusual features which are thought worthy of presentation. It is only fair to say at the outset that the diagnosis was arrived at more by a process of exclusion than by any pathognomonic or serological data obtained.

With this preliminary explanation the history and physical findings together with laboratory reports are copied below from the hospital record. Sufficient bibliography not being at our disposal, no review of the literature is quoted.

*Read before the Cole County Medical Society, Jefferson City, at its regular meeting October 3, 1921.

Mr. R. S., a railway mail clerk, aged 27, married, white, first seen September 9, 1921, 11 a. m., at a local hotel.

Family history unimportant. Past history included influenza in Fall, 1920; not complicated. Habits good, save irregularity in time of meals usual to railroad men.

Onset of present illness September 1. On arising had headache, general feeling of malaise with some pain in right chest, no cough. Illness was not of sufficient magnitude to prevent patient going about his regular duties which he continued until today (September 9). Today has had chilly sensations though no frank chill. All morning has noticed his left hand and arm slowly becoming useless, with headache and severe dull pain in back. Noticed the afternoon of admission "quivering spots" in flesh of arm. Has been getting worse all day, more restless, and unable to find a restful position in bed. Denies venereal infection. He remembered having drunk a very small amount (less than two drinks) of questionable whisky a few days ago. Sex history, happily married with two healthy children.

Physical Examination.—Patient a well nourished man, of excellent physique, very restless and thrashing about in bed. Complaints of pain in neck and small of back. There is a peculiar intention tremor of facial muscles on attempting to talk. Well oriented as to time, place and past events. Skin smooth, moist and of dusky color, and livid in high lights. Mucous membranes of a deep violet red.

Head held well back, though not to extent of opisthotonus. Pain rigidity and spasms of neck muscles on forced flexion (Brudzinski).

Eyes.—Pupils dilated, round and equal, though react sluggishly to light, well to accommodation. Left more sluggish than right.

External ocular movements and convergence normal, sclerae clear.

Pharynx congested slightly, tongue protrudes in midline; no tremor.

Chest.—Noticeable absence of intercostal action, more marked since morning when it was absent only on left side. Now nearly complete on right side as well. On forced inspiration scalene group alone functions with right diaphragm. Left diaphragm only partly functioning. Alae nasae dilated during inspiration as in advanced dyspnea. Quiet respiration, purely abdominal in type. Breath sounds diminished on left though found to be normal on forced respiration. Heart sounds normal, no enlargement to percussion A 2 greater than P 2.

Abdomen shows no masses or tenderness, spleen not felt.

Genitals normal.

Spine.—No tenderness on pressure or manipulation.

Extremities and Reflexes.—Flaccid paralysis of forearm and upper arm groups. Some slight power in deltoids. No grip in left hand, very slight in right. Sensory examination (pinprick) unimpaired. Lower extremities.—No change in sensory or motor functions.

K. K.—Hyperactive and equal. No clonus Babinski or modifications; slight Kernig and Brudzinski.

Musculature.—Localized and diffuse "twitchings" of isolated groups of muscle fibers over upper extremities and chest suggesting in type a myoclonus multiplex.

Pulses equal and regular, soft and compressible.

Blood pressures R and L arm—S 140; D 80.

Laboratory Findings.—Blood—W. B. C., 15,400; R. B. C., 5,640,000; Hb., 90 per cent. (Dare); color index, .8; Polys, 87 per cent.; S. lymph., 12; L. lymph., 1; no pathological cells seen.

Urine.—Yellow, clear; Sp. gr. 1.034; albumen, trace; sugar, negative; bile, negative; microscopical—a few

finely granular casts; diacetic, negative; acetone, negative.

Spinal Fluid.—Increased pressure, clear, amount 40 c.c.; cells, 240 per cu. mm.; Noguchi, positive; differential, 100 cells; polys, 66 per cent.; S. lymph., 33; L. lymph., 1. Smear and culture, negative.

Hospital Course.—Patient admitted to hospital 7:30 p. m. External heat applied to back. Morphine sulph. gr. $\frac{1}{8}$ H. at 9:30 p. m. with relief of back-ache. Rested comfortably and slept sound until 12:30 a. m., when shortness of breath became acute. Morphine sulph. gr. $\frac{1}{8}$ repeated without relief. At 1:45 a. m. patient fighting for breath (from nurse's record). Patient seen at 2 a. m., cyanotic, apparently dead. Respiration ceased, though heart beating. Rate not determined.

Artificial respiration given with result that consciousness returned. Strychnin, Atropin and camphorated oil sub. q. Coffee and milk given by mouth and relished. Frequent sips of water.

Spinal puncture made with aid of pulmotor at 7:30 a. m. Laboratory results as elsewhere stated. Antimeniugococcus serum 1500 units intraspinally.

Artificial respiration maintained until 1:15 p. m. with oxygen tube in nares as aeration became more difficult.

Morphine administered at 1 p. m. when condition was thought to be hopeless.

Quiet death at 1:15 p. m. by asphyxia. Unfortunately no autopsy could be obtained.

The unusual features referred to in the introductory paragraph had best be enumerated as first the lack of temerity of making such a diagnosis in the absence of any epidemic of poliomyelitis or even of sporadic cases of the disease, and, second, the localization of the cord process so as to progressively involve by groups the entire respiratory motor mechanism.

The respiratory center was entirely out of the picture and remained so to the end as evidenced by the subjective air hunger complained of by the patient whenever the rate of artificial respiration was insufficient for his needs. Another interesting sidelight from the physiological standpoint was the fact that super-aeration also produced acute distress manifested by headache, etc., the patient throughout the period during which artificial respiration was maintained regulating its rate and depth by his own directions.

The pulmotor with oxygen tank was used during the spinal tapping though abandoned, as a routine measure, for the simpler if more laborious manual method of Sylvester. This also at the patient's request and for this purpose a relay composed of Dr. E. E. Mansur, Dr. L. D. Enloe and myself was used together with some intelligent lay help who kindly volunteered their services.

SERUM DESENSITIZATION.—The experiences of George M. Mackenzie, New York (*Journal A. M. A.*, June 4, 1921), illustrate more or less successful attempts to increase the tolerance of hypersensitive individuals for horse serum. The diagnosis in each of four patients whose histories are given was lobar pneumonia, Type I, and the serum used was antipneumococcus Type I serum.

A CASE OF WEIL'S DISEASE*

G. S. CANNON, M.D.

FORNFELT, MO.

Mrs. W., aged 46; family history negative as to malignant diseases; menses regular; clinical history good except began having gall-stone colic in 1907 for which she was operated in 1917; gall-bladder drained and appendix removed; no return of colic since the operation; had a mild attack of influenza in October, 1918. Family history good; she is the mother of four children; confinements were normal and no miscarriages. Present illness began September 29, 1921; onset sudden, with fever, pain in back and limbs, eye-balls tender, and free discharge from nose, extreme chilliness on movement followed by hot flashes; giddiness and extreme nausea, vomiting a stringy mucus; constipation. These symptoms increased for two days, temperature rising to 103, and mild delirium. On the fourth day jaundice appeared over entire body but liver and spleen not enlarged; extreme tenderness over liver, in fact pretty well over entire abdomen; urine scanty, highly colored but no albumen; vomiting almost continuous; bowels at this period became loose with frequent liquid stool containing bile; delirium more pronounced; fever at this time was of a remittant type and on the seventh and eighth days semicomatose condition existed; thirst had been extreme from onset of disease; on the eighth day symptoms began to subside and on the tenth day a normal temperature. On the eleventh and twelfth days temperature was slightly above normal with a mild return of vomiting.

Widal was negative. On the 14th and 15th day patient was in a comatose condition, temperature ranging from 101° to 103° but no vomiting; bowels constipated.

On the night of the 15th day had a profuse sweat since which time symptoms gradually abated, temperature going above normal every other day but gradually declining under the administration of quinine. Icterus has entirely disappeared at this time. At the present time (20th day), patient is slowly convalescing.

On September 13 patient returned from a two weeks auto trip through the Ozarks, some nights sleeping in a bed in the house, others outdoors; some meals were hot, others were cold lunches; water from springs, wells and cisterns.

My first diagnosis was influenza; next was acute yellow atrophy, and final diagnosis is Weil's disease, or acute infectious jaundice, this being based purely on course of symptoms and termination of illness.

NEW PRINCIPLES IN PLASTIC OPERATIONS OF EYE-LIDS AND FACE.—Joseph Imre, Jr., Budapest, Hungary (*Journal A. M. A.*, May 7, 1921), describes his method of performing plastic surgery. The principle of the method is to cover the skin defect from the immediate neighborhood of the defect without any real pedunculated flap. In order to be able to slide the greatest quantity of skin with the shortest possible wound, he utilized a curved cut and slides the tissue used for covering the defect in a bow. The curved incision should have the form of a quarter ellipse and be about four times as long as the length of the necessary sliding. At the end, a small triangle of skin should be removed to make possible an easier sliding as well as to prevent the possibility of conspicuous hills or wrinkles. Details are fully illustrated by drawings.

*Read before the Southeast Missouri Medical Society, Charleston, October 19, 1921.

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JANUARY, 1922.

EDITORIALS

DR. M. A. BLISS CANDIDATE FOR DELEGATE AT LARGE

The petitions have been filed with the Secretary of State nominating Dr. M. A. Bliss of St. Louis as a delegate at large to the state constitutional convention to represent the medical profession and public health organizations. Dr. Bliss is eminently fitted to represent public health interests in this important body and will guard the interests of the practitioners of medicine as well as of medical science. It is essential that every member take an interest in this matter so that Dr. Bliss will receive enough votes at the election, to be held on January 31, to give him a seat in the convention.

There are twenty-eight candidates for delegate at large, but only fifteen can be elected. In choosing the fifteen for whom to cast their votes, members should not fail to vote for Dr. Bliss. The twenty-eight names will appear on the ballot without any designation of political affiliation or other information indicating their business or social connections. The names of candidates for delegate at large follow:

REPUBLICAN-DEMOCRATIC FUSION TICKET

Norman A. Mozely, Poplar Bluff (Rep.), lawyer.

Joshua W. Alexander, Gallatin (Dem.), lawyer.

Judge George H. Williams, St. Louis County (Rep.), lawyer.

Judge Daniel G. Taylor, St. Louis (Dem.), lawyer.

William Sachs, St. Louis (Rep.), banker.

William T. Johnson, Kansas City (Dem.), lawyer.

Solon T. Gilmore, Kansas City (Rep.), lawyer.

A. T. Dumin, Jefferson City (Dem.), lawyer.

Cassius M. Shartel, Neosho (Rep.), lawyer.

Stephen B. Hunter, Cape Girardeau (Dem.), banker.

Charles D. Morris, St. Joseph (Rep.), editor.

Don O. Vernon, Lebanon (Dem.), lawyer.

A. A. Speer, Jefferson City (Rep.), banker.

Mrs. W. W. Martin, Fayette (Dem.).

Mrs. Walter McNab Miller, Columbia, Republican.

INDEPENDENT CANDIDATES

C. A. Greene, Sedalia.

Reuben T. Wood, Springfield.

Marie Ames, St. Louis.

Malcolm A. Bliss, St. Louis.

David Kreyling, St. Louis.

William R. Carver, St. Louis.

Elizabeth Buchanan, Kansas City.

John Porter Henry, Webster Groves.

Walter J. G. Neun, St. Louis.

W. K. James, St. Joseph, R. F. D.

Edna Fischel Gellhorn, St. Louis.

Clarence H. Howard, St. Louis.

A. J. Crawford, Atlanta.

THE BROKEN VESSELS IN OUR MIDST

The planets will in all probability continue to perform evolutions as usual for an indefinite period, and by the same token mankind will not cease taking things for granted until awakened to the fact that they are compelled to progress while passing through this particular stage of evolution termed mortality. In the days when the world was young, the flesh was symbolic of the evil impulse, or the "devil." In fact, that artist was considered most successful in the depiction of sin who could inscribe on his canvas the grossest representation of the human body. So it came about, after awhile, that any deviation from the normal physical form was construed as signifying the displeasure of Deity. The result was that those who should have been the object of their fellow-man's solicitude became instead the recipients of humanity's scorn and repulsion.

Therefore we read of the leper winding his despairing way through the streets of a benighted antiquity sounding his anguished call, "unclean." Then came enlightenment and the law of love which slowly but surely began creeping into men's hearts, causing them gradually to change their attitude toward the marred human molds which they had been wont to consider mere flotsam and jetsam. Summed up, our attitude on the whole toward these unfortunates has been anything but fair. It is therefore with particular delectation that we noted the announcement last month of ground being broken at St. Louis by the Shriners of America for the erection of a magnificent hospital for crippled children open to all sects and creeds. Could one instance a finer example of the sublime philosophy of service; a more fitting tribute to world progress?

When one actually beholds the achievement he is apt to forget that a problem such as that which is presented by the cripple has more than one or two phases. The splendid institution which is to be built for the purpose of solving this complex question presents interesting features of direct concern to the medical profession of Missouri. The hospital at St. Louis is to be the central unit of a series of several such institutions throughout the vicinities where they are deemed most essential. In fact, according to newspaper reports, the movement seems to have become contagious from the viewpoint of incentive so that we read of several cities having expressed the desire to further activities that will eventuate in hospitals of like character being supported independently of the Imperial Council of Shriners, and when one stops to consider that there are approximately 400,000 crippled children in this country and Canada, the need for such movement becomes clearly evident.

With pardonable pride do the physicians of Missouri view the selection of the hospital at St. Louis as the "center of research and educational instruction" for all the other hospitals to be erected. Its proximity to Washington University Medical School reflects vision and wisdom in this choice, and by a favorable coincidence the dean of the medical school is president of the American Society of Orthopedic Surgeons. The hospital is to contain eighty beds, and for admission there is to be "no restriction as to color, creed or station in life; the only requisite is that they shall be poor children."

Under the guise of philanthropic incentives, our country is occasionally invaded for the exploitation of selfish motives of the foreigner. Gaged by a superficial analysis and inspired by ostensible presentations, it is easy to be swayed in the direction of considering the visitor as a suitable subject for hero worship. But what are the facts? The life of the crippled child and the perspective of the parents is permeated more or less with resignation which follows the despair attendant on the defect, but underneath this attitude are the smoldering embers of latent hope ready to be fanned into buoyant expectations. Along comes the foreign doctor, a huge physique, a patriarchal personality, coupled with the flare of past accomplishments, and we have a combination calculated to encourage the most forlorn despondency.

Unfortunately, underneath this variegated setting there lies a mercenary motivation which the public cannot easily fathom. The halo which attracts them is imbued with a psychology foreign to the American mind. The injustice of the whole matter to our profession

becomes manifest when the following facts are presented for consideration: the average case of the crippled child is usually of the protracted kind, requiring treatment over a long period of time. The conscientious American physician knows this and therefore hesitates to suggest a radical operation, for the results in many instances hinge on the steadfastness and devotion to the after-treatment, which hitherto has been handicapped by the absence of efficient hospitals for these cases. The foreign physician knows this also, but it would dim the grandeur of his setting were this given out generally. So, literally, he comes, he sees, he conquers. But actually, the invader makes a meteoric dash through the large metropolitan centers, performs a radical operation here and there, gathers the gold, and departs, leaving numerous cases on the hands of our orthopedic surgeons for an indefinite period thereafter. Now that we are to have an efficient system of American orthopedic hospitals to handle the problems of the crippled child, our soil will become sterile as a source of revenue.

The institutional aspect of the problem having apparently reached a status of logical solution, the next important phase of the question resolves itself into the matter of affording proper educational facilities for the crippled child. There is something decidedly tragic about the idea of placing a child physically handicapped into a room with normal children and applying the same course of study for all. It does not require that one should enter into the details of such a plan to divulge the absurdity and unfairness of the scheme. It is a fact nevertheless that this, like other factors embracing the health of the school child, has not appeared significant enough to arouse the average pedagogue from his traditional complacency, and yet in a recent report of the federal bureau of education, Commissioner Claxton discloses conditions which are referred to as a "welter of ignorance and irresponsibility," when discussing the lack of interest in the child's physical welfare.

Fortunately there is at present a movement on foot, emanating from the St. Louis Board of Education, to provide the proper educational environment for crippled children in St. Louis. This when accomplished will establish the St. Louis school system as a splendid example for others to emulate in conserving the health of the school child. The mentally defective school child is now handled by the department of tests and measurements of the St. Louis School Board, the open air school system is too well known to need any description at this time, while defects of the hearing and speech apparatus are handled at a special school. The school for crippled

children will fill a long felt need. The federal government has demonstrated the wonderful achievements which may be accomplished by training the crippled adult; how much more relevant therefore to begin with the pupil in the grade school.

If the handicapped adult can be taught "new tricks" then by all means let us by properly educating the coming citizens of our state, avoid producing more objects of charity for the future. The fact that the clinical feature of this complex problem is nearing a solution should cause no relaxation in the efforts toward proper arrangements for the educational factors, for to neglect the mind because the body is imperfect is obviously fallacious reasoning.

THE DENVER MEDICO-LEGAL EPI-SODE

According to recent press dispatches from Denver a judge of the juvenile court is said to have recommended that an operation to produce sterility be performed on a Mrs. Cassidente of that city. The social workers who reported this case and hailed the woman before the court are quoted as having found the woman's home in a "filthy condition, and that her five children were neglected and undernourished." In a later report the judge denies that he recommended such an operation but that he would countenance such a procedure if an investigation disclosed conditions that would make it necessary and the consent of the parties concerned could be obtained. It appears further that the court's opinion was based on the testimony offered at the trial by a medical student.

From the general tenor of the reports it would seem that the Denver judge in his solicitude for the welfare of posterity sought to have the Fallopian tubes of this woman ligated, but, due to the subsequent publicity engendered by the newspapers he found himself wedged into the test tube of public analysis and hastily extricated himself as best he could. As physicians we are vitally concerned over the fact that so comprehensive an act as the abolition of a woman's procreative powers should have been entertained by a court on no sounder basis than the advice of a medical student. It would be interesting to fathom the processes of reasoning in the judge's mind which eventuated in so radical a resolve.

Could it possibly have been that the evidence of the medical student was the incentive? If so, then must we consider such an attitude open to serious questioning, for the reason that the establishment of a precedent of this nature would be sufficiently far-reaching in its effects

to involve the medical profession in countless perplexities. Our fraternity today is harassed with an abundant supply of erratic opposition, so that it augurs insistently for perpetual vigilance tempered with discretion in safeguarding the interests of our profession and our traditional relationship to the public. The fact that the woman's circumstances were found to be destitute simply proffers a loophole for the antagonists of society to project their rabid convictions; unfortunately in this instance with some specious force of reasoning. The knowledge that the menace of bolshevism and other anarchistic tendencies are ever on the alert for just such occurrences should have tempered the judge's decision with discretion above all other considerations.

Another phase of the situation presents itself through the absurdity of advocating sterilization for so frail a reason as filth and undernourishment. Anyone familiar with sociological conditions throughout the country, particularly in our cities, is well aware that dirt and malnutrition reign in abundance among the lower strata of our population. On the basis of the Denver case, we would have to begin wholesale sterilization. Here we are immediately halted by the unique fact frequently evidenced, that it is not from our higher estates in society that destiny is accustomed to choose those who are to be her leaders. We have many examples to sustain this contention in our own country, but at this time particularly Europe has afforded two pertinent illustrations in the persons of Lloyd George and Clemenceau, the latter evincing pride in his rise, he having been "reared in a soap box" because there were no funds to obtain a cradle.

There is a strong probability that the factor of a subnormal mentality may have been involved in the present instance, granting which, however, would constrain one to ask, who shall be the one to decide? The judge? Hardly. And equally ineffectual must be the student's testimony. It is extremely doubtful if the operation would have been performed even if the order of the court had been issued. In proof of this assertion one need but site the regulations which have been placed upon the statute books of several states, but which it is conceded are generally ignored by courts and institutions. No one seems willing to interfere with natural laws, no matter how rational and salient these regulations may appear to be.

The gist of our comment leads us to consider what appears as a far-off glimmer on the sociological horizon which may eventually help to solve these problems. The subject of mental hygiene is gradually coming in for attention. In the past, medical and sociological efforts have invariably tended to center around

things physical. State and federal governments are now beginning to extend assistance to those who for divers reasons are handicapped mentally, and for whom the past held but one goal as far as the state was concerned, namely, an asylum. In Missouri, compulsory education laws have been passed for the benefit of the mentally deficient. State assistance is being rendered to those school systems which are sustaining psycho-educational clinics (renamed in several cities, notably in St. Louis, as departments of tests and measurements). An impetuous movement has been launched throughout the entire country by educational institutions to adopt systems of tests and measures for gauging the intelligence of pupils. The result is easily evident. By teaching those of lower mental caliber to care for themselves properly, filth and malnutrition will vanish from their environment and the state will be more than repaid for its efforts in special preparation.

An interesting feature which was divulged by the social workers who were concerned about Mrs. Cassidente is, that the attitude which was manifested by these persons toward one whom they presumably sought to help sounds singularly out of tune with the spirit of the times. Co-operation and sustained help are by-words of the present day. Would it not therefore have been more in alignment with the dictates of these virtues if the social agencies concerned in the case had sought to meet the requirements of the family in a constructive manner? Work of this sort requires men and women of deep human understanding and a broad sympathetic vision toward those whom they would serve and certainly in this field of human endeavor the big stick should be conspicuous by its absence.

Untoward incidences such as the Cassidente affair has brought to light are not without their compensating features. A greater plea is thereby made for selecting competently trained and efficient workers who will discharge their duties quietly and effectively. The struggle for existence consumes a great deal of stamina. Many fall by the wayside. The medical profession has been ever ready to do its share in helping sustain social equilibrium. Our greatest incentive, however, has been to assist in a constructive manner. If anything of a radical nature is to be considered, such for example as an operation for sterility, then let us strive to reach a logical conclusion by having as arbiters the highest authorities available, not medical students and social workers.

THE CAMPAIGN AGAINST VENEREAL DISEASES

The Public Health Institute, held in St. Louis, December 5-7, at the Statler Hotel, was given under the auspices of the U. S. Public Health Service, the State Board of Health, and the City Health Department. It was one of a series held throughout the United States for the purpose of informing the public of the dangers of venereal diseases, their causes and effects, and the methods of prevention and cure. Dr. Rachelle Yarros, Consultant of the U. S. Public Health Service, has general supervision of these institutes.

The first day was devoted to the medical aspects of social hygiene, Mr. Nelson Cunliff, Director of the Department of Public Welfare, presiding at the morning meeting. Dr. Rachelle Yarros was the first speaker, discussing the Relation of Social Hygiene to Venereal Disease Control. Dr. C. E. Burford discussed gonorrhea and Dr. John Marchildon spoke on clinic management. Dr. Max Starkloff told what St. Louis is doing to control venereal diseases.

Dr. R. L. Russell of the State Board of Health presided at the afternoon session during which Dr. Martin F. Engman spoke on Syphilis, Dr. Borden Veeder on Syphilis and Its Relation to Child Hygiene, and Dr. W. McN. Miller on Syphilis and Tuberculosis.

At the evening session at Poro College, Dr. C. S. Thomas spoke to the colored people on the work of the Municipal Clinic. Dr. R. L. Russell also spoke at this meeting and showed educational films.

The speakers on the morning program for the second day at which Mrs. W. McN. Miller presided, were Mr. Victor Miller, President of the Police Commissioners, Miss Virginia M. Murray, Director of the Woman's Division of the Detroit Police Department, Mr. Bascom Johnson, Director of the Legal Department of the American Social Hygiene Association, and Judge Henry Caulfield, City Counselor of St. Louis.

Dr. M. A. Bliss presided at the session on Mental Hygiene. At this session Dr. Charles Thierry, Dr. James Lewald and Dr. James McFadden spoke on the necessity of mental diagnosis in the treatment of delinquents, and the establishment of a clinic in connection with the courts for this purpose.

The evening meeting was under the auspices of the St. Louis Medical Society, the regular meeting of the society being given over to the program provided by the Institute, and was enthusiastically attended.

The speakers were Mr. Bascom Johnson, Miss Virginia Murray, Rev. George Dodson, and Dr. Rachelle Yarros.

The third day was devoted to protective social work and sex education. Dr. Frances Bishop presiding over this session. Miss Jessie Binford, Field Representative of the U. S. Interdepartmental Social Hygiene Board, spoke of the work of this federal board and on general protective work. Dr. Yarros spoke on What and How to Teach Children. Dr. James Stewart, Director of Hygiene in the St. Louis Schools, Mr. Lewis Dougan, Principal of the Eugene Field School, Dr. R. L. Russell and Dr. William Edler were the other speakers.

The attendance was beyond all expectations, and proved conclusively that the interest in social hygiene has developed tremendously. Parents, teachers, nurses and social workers attended the meetings regularly for three days at one of the busiest times of the year.

The following organizations co-operated with the federal, state, and city health departments to make this institute a success: The Missouri Social Hygiene Association, Woman's Christian Temperance Union, Catholic Women's League, Board of Religious Organizations, Council of Jewish Women, Missouri League of Women Voters, St. Louis League of Women Voters, Parent-Teachers' Association, Federated Clubs, Eighth District, Wednesday Club, St. Louis Chapter of the American Red Cross, and the U. S. Interdepartmental Social Hygiene Board.

NEW ERA IN MEDICAL PRACTICE— TRAINED ASSISTANTS

For many years one of the problems of the practitioner of medicine has been the securing of an office assistant who could relieve him of many minor details of administration. A few doctors in groups have solved it for themselves by taking time to train their own assistants, but the practitioners who needed the assistants most were unable to follow this plan as it would have meant neglecting their practice. In decided contrast to this situation in our profession is the position of the "tired business man" who for years has had the services of an army of typists, stenographers, bookkeepers, clerks, auditors, accountants, operators of labor-saving devices and more recently the services of the income tax expert. (Few physicians have felt any need for the last-named service.) In the future, however, physicians need not envy the business man for a training school for assistants to physicians has been established.

The Midwest Training School for physicians' and dentists' assistants is located in Kansas City, Mo. The school inculcates in its students the doctor's idea of an ideal assistant

which may be expressed as follows: "A young woman who can bring business methods into the front office, extract the kinks and leaks from the books, who has the knack of good office manners, and appreciation of medical ethics, a working knowledge of laboratory technique and the usual office apparatus." The school occupies a large three-story brick building and has both day and night classes in session at the present time.

Students are thoroughly trained in reception room work, keeping of records and accounts, taking histories, etc. The two major departments of the course are laboratory and electrotherapy. In the former are taught the technique of blood counts, urinalysis, differentials and various smears; pathological specimens are used in the training. Instruction is also given in the principles of nursing as needed in office practice. The entire course is based on a preliminary study of anatomy and physiology. The two other courses offered are dentists' assistants and practical nursing.

A unique feature for a professional school is the personnel or welfare department in charge of a trained social worker. Parents and physicians need have no hesitancy, therefore, in sending young women to this school. Their health and welfare will be properly guarded and cared for. This department meets the incoming students at the Union Station. It arranges for the living accommodations of the student in personally inspected homes near the school; it establishes banking connections and in many other ways serves the student.

That the school has been a success is shown by three facts: First, many physicians have sent their office girls there for technical training; second, by an enrollment from many states including Wisconsin, Michigan, Oklahoma, Texas and California, as well as Missouri and Kansas; third, the demand for graduates far exceeds the membership of the classes. Communications and requests for literature may be addressed to the Registrar, Mr. R. C. Wiley, corner Independence and Gladstone Boulevards, Kansas City, Mo.

WESTERN SURGICAL ASSOCIATION

The thirty-first annual meeting of the Western Surgical Association was held in the Statler Hotel at St. Louis, December 9 and 10, under the presidency of Dr. Chas. D. Lockwood, of Pasadena, California. The attendance was excellent, and members from all parts of the country were present.

Every paper presented was of a high class. The contribution of Dr. Allen B. Kanavel of Chicago on "Tuberculous Infection of the

Tendon Sheath of the Hand" was a classic, and that of Dr. Emil G. Beck of Chicago on "What Can Be Done in Apparently Hopeless Cases of Carcinoma and Sarcoma" was a revelation even to experienced surgeons. The contribution of Dr. L. F. McArthur of Chicago on "An Original Method of Repairing Injuries of the Common Duct" was exceedingly valuable. Two of the best papers on the program were those of Dr. Wm. T. Coughlin and Dr. Fred. W. Bailey, of St. Louis. Dr. Coughlin dealt with the injuries of the face and jaws, illustrated by lantern slides, and showed examples of the marvelous work that is being accomplished in the reconstruction of some of the war injuries. Dr. Bailey's subject, "The Recognition and Treatment of Post-Operative Complications," was exceedingly well received.

The annual banquet was held at the Missouri Athletic Club and was addressed by Dr. Chas. D. Lockwood of Pasadena, whose subject, "The General Surgeon, Past, Present and Future," gave much food for thought.

The address of Reverend Dr. Bitting on "The Reaction of Surgery on the Surgeon" was considered by the members one of the most remarkable orations that they had ever heard and led to Dr. Bitting receiving invitations to address medical gatherings in Iowa and California.

Minneapolis was selected as the next place of meeting to be held in December of next year. Dr. Miles F. Porter, of Fort Wayne, Ind., was elected president; Dr. V. P. Blair, of St. Louis, first vice president; Dr. J. Frank Corbett, of Minneapolis, second vice president, and Dr. Warren A. Dennis, of St. Paul, was re-elected secretary and treasurer.

NEWS NOTES

DR. J. F. CHANDLER of Oregon has been appointed examining surgeon on the pension board at Oregon, Mo.

DR. G. W. HAWKINS of Salisbury was elected vice president of the Wabash Railway Surgeons' Association at its meeting in St. Louis last month.

DR. H. P. BEIRNE, Director of the Beirne Radium Institute, Quincy, Ill., has been appointed a member of the Board of Medical Examiners of Illinois.

DR. J. A. AHSER of Trenton, formerly secretary of Grundy County Medical Society,

who has been ill for several weeks, will spend the winter in Phoenix, Ariz.

DR. VILRAY P. BLAIR of St. Louis was elected vice president of the Southern Surgical Association and also vice president of the Western Surgical Association.

THE death of Dr. J. C. Shelton, Chillicothe, leaves that community open to the services of a specialist in diseases of the eye, ear, nose and throat. Inquiries may be addressed to Mrs. J. C. Shelton, 1103 Locust Street, Chillicothe, Missouri.

DR. H. E. PEARSE of Kansas City, chairman of the committee on hospitals of the State Medical Association, inspected the hospitals of Jasper County, December 6, 1921. Dr. Pearse addressed the staff of St. John's Hospital, Joplin, and was their guest at a dinner held at the hospital.

The Ophthalmic Section of the St. Louis Medical Society announces a course of lectures in ophthalmology, to be given in St. Louis by Professor Ernst Fuchs, of Vienna, during the month of February, 1922. Further information regarding this course may be obtained by writing to the Fuchs Lecture Committee, St. Louis Medical Society, 3525 Pine St., St. Louis, Mo.

DR. R. G. KELLER of Freeman was stricken with smallpox during the epidemic in December and died from the disease December 21. His death leaves the community without a physician so that any member desiring to change his location might find Freeman a suitable town in which to practice. Inquiries may be addressed to Mrs. Sue B. Keller, Freeman, Missouri.

THE first examination of the National Board of Medical Examiners under the new plan, in Parts I and II, will be held as follows: Part I, February 15, 16 and 17 (1922), inclusive. Part II, February 20 and 21 (1922), inclusive. Applications for examination should be received not later than January 15, 1922. Application blanks and circulars of information may be had by writing to the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

THE Kansas City Eye, Ear, Nose and Throat Society, composed of ophthalmologists and otolaryngologists from Missouri, Kansas, Oklahoma, and Arkansas, held its regular monthly clinic meeting at St. Margaret's Hospital, Kansas City, Kansas, and Bell Memorial

Hospital, Rosedale, Kansas. The guest of the society, Dr. H. W. Woodruff, of Joliet, Ill., operated upon cases of cataracts, muscle cases (on two of which he did his tendon tucking operation with his new tendon tucker) and other conditions and gave a moving picture demonstration of his operation for paralytic squint and tucking operation for squint.

MANY of our members carry policies in the Medical Protective Company of Fort Wayne, Indiana, and have found that when the occasion required the company to protect them against a malpractice suit the service was prompt and efficient. Very few of our members, however, have seen the company's home or know the officers, although the editor has been acquainted with them for a number of years. In order that the members may have an idea of the magnitude of this business the company has inserted a four page advertisement in this issue of the JOURNAL, showing the personnel of the staff of the company and many views of the building and equipment required to conduct the business expeditiously. The attention of our members is invited to this attractive display in the advertising pages.

THE semi-centennial, or jubilee, meeting of the American Public Health Association in New York City is remarkable for the reason that it marks the fiftieth anniversary of the founding of the American Public Health Association. It should be a source of satisfaction to the members of our Association to know that the leading figure in the meeting and the president of the public health association for the year just past was Dr. Mazyck P. Ravenel, Professor of Preventive Medicine in the University of Missouri. Probably the most lasting reminder of the jubilee meeting is the volume entitled "A Half Century of Public Health," of which Dr. Ravenel is the editor. He selected a score of the leaders in public health thought as associates, each an expert in his own field. This task he has performed with signal tact and critical judgment. The volume is dedicated to Dr. Stephen Smith, who was the first president of the American Public Health Association and who happily has lived to take part in this recent fiftieth annual meeting of the Association.

DOCTOR G. P. ARD, Health Supervisor in charge of eleemosynary institutions, announces changes in the medical personnel of several state hospitals, as follows: Dr. T. B. M. Craig was not reappointed superintendent at State Hospital No. 3, Nevada, Dr. Porter Williams being transferred from St. Joseph to Nevada, and Dr. A. C. Vickrey of St. Louis

was appointed superintendent of State Hospital No. 2, at St. Joseph. Dr. Vickrey was formerly a member of the staff of the St. Louis City Sanitarium and for the past two years has been psychiatrist for the Bureau of War Risk Insurance for the 9th district. Dr. Myrtle M. Brill of Shawnee, Oklahoma, A.B., M.D., University of Indiana, 1914, who has had institutional experience in Michigan and Indiana, was appointed woman physician of the hospital at Nevada. Dr. A. F. Bryan of Fulton, Mo., a graduate of the Northwestern University Medical School, Chicago, who has had experience in the Henrotin Memorial and the Polyclinic Hospitals at Chicago and the St. Louis City Hospital, was appointed assistant physician at State Hospital No. 1, Fulton.

These appointments were made upon the recommendation of Dr. Ard, who expresses the hope that they will meet with the approval of the medical profession.

MEMBERSHIP CHANGES, NOVEMBER AND DECEMBER

NEW MEMBERS

- Baker, Jesse W., Marionville.
- Balaza, Karl J., Lutheran Hospital, St. Louis.
- Bock, Lux H., 2208 S. Jefferson Ave., St. Louis.
- Boone, Uriel S., 404 N. 9th St., St. Louis.
- Burch, E. J., Carthage.
- Chamberlain, Iris M., St. Louis Children's Hosp., St. Louis.
- Clasen, A. C., 3520 Main St., Kansas City.
- Clemmer, Chas. A., Ferguson.
- Draper, D. B., 5535 Delmar Ave., St. Louis.
- Dudley, Carl E., 810 Metropolitan Bldg., St. Louis.
- Elliott, Benj. L., 910 University Club Bldg., St. Louis.
- Ferris, D. P., 1000 Carleton Bldg., St. Louis.
- Froelich, E. J., 12th and St. Louis Ave., St. Louis.
- Gallagher, Wm. J., St. John's Hospital, St. Louis.
- Haile, L. C., City Hospital, St. Louis.
- Kehoe, Jos. J., 4145 St. Louis Ave., St. Louis.
- Kennedy, Thos. R., 4132 Flora Blvd., St. Louis.
- Lamb, D. R., 501 Humboldt Bldg., St. Louis.
- Leslie, J. T., Rhineland.
- Little, J. B., Norwood.
- McKitterick, John C., Children's Hospital, St. Louis.
- Mantz, H. L., 31st and Indiana Ave., Kansas City.

Missimore, L. E., 1259 N. Kingshighway, St. Louis.

Mendonsa, L. A., 814 Metropolitan Bldg., St. Louis.

Murphy, A. J., 6823a Manchester Ave., St. Louis.

Murrin, J. O., St. John's Hospital, St. Louis.

Rauschelbach, O. R., Rhineland.

Schneiderman, Henry, 507 Argyle Bldg., Kansas City.

Sewell, W. S., St. James.

Shannon, Thos. R., 3003 Olive St., St. Louis.

Smith, B. A., Southwest City.

Smith, C. S., Holland Bldg., Springfield.

Squibb, H. W., 331 E. Walnut St., Springfield.

Stilson, G. D., 4500 Parkview Pl., St. Louis.

Taylor, C. B., Carthage.

Wilcox, C. V., St. John's Hospital, St. Louis.

Wolter, O. L., 1446 Blair Ave., St. Louis.

Wood, Wm. G., 6143 W. Park Ave., St. Louis.

REINSTATED

Pond, J. F., 755 Century Bldg., St. Louis.

Langan, Wm. J., 5803 Plymouth Ave., St. Louis.

Latimer, B. E., Hartville.

DECEASED

Barr, Bernice B., Clinton.

Hughes, W. G., Senath.

Newman, Louis E., Humboldt Bldg., St. Louis.

Porter, Wm., Ocean Springs, Miss.

THE FOLLOWING MEMBERS HAVE MOVED

Adams, Noah, 1010 Rialto Bldg., Kansas City, to 516 Chambers Bldg.

Arbuckle, M. F., Lister Bldg., St. Louis, to University Club Bldg.

Blaylock, R. D., Pocahontas, to Matthews.

Brunig, F. H., Argentine Kan., to 315 E. 10th St., Kansas City.

Brunner, E. E., Carrollton, to Farmington.

Casey, E. B. M., Frisco Hospital, Springfield, to 542 Landers Bldg.

Crawford, H. S., Harrisonville, to U. S. Veterans' Bureau, Ft. Dodge, Iowa.

Gilliland, O. S., 4722 Charlotte, Kansas City, to Polyclinic Hosp., Philadelphia, Pa.

Green, J. R., Rialto Bldg., Kansas City, to Owen Bldg., Independence.

Gullic, J. F., Koshkonong, to Thayer.

Hartley, W. E., Sedalia, to 550 Century Bldg., St. Louis.

Harrison, A. W., Warrensburg, to 3002 Prospect Ave., Kansas City.

Heibner, E. B., Green Ridge, to 105½ W. Cherry St., Nevada.

Kearney, E. F., Oregon, to Mound City.

Kneale, Ellsworth, 5600 Arsenal St., St. Louis, to 211 Lister Bldg.

Knerr, E. B., 3338 Broadway, Kansas City, to 7345 State Line St.

Lewis, Chas., 1502 St. Louis Ave., St. Louis, to 2936a Hebert Ave.

Lowry, H. L., Trenton, to Morrill, Kan.

Lyons, R. C., Neelyville, to Naylor.

Morrison, M. T., Lutheran Hosp., St. Louis, to 4711 Washington.

Osborne, Chas. D., U. S. P. H. S. Hosp., St. Louis, to U. S. P. H. S. Hosp., St. Paul, Minn.

Schorer, Edw. H., 3704 Charlotte St., Kansas City, to 4506 Mill Creek Parkway.

Settle, F. B., Rochester, Minn., to Long Beach, Calif.

Stadler, S. A., 3101 Main St., Kansas City, to 3046 Main St.

Taylor, F. B., 721 Lathrop Bldg., Kansas City, to 800 Rialto Bldg.

White, E. C., 226 Lathrop Bldg., Kansas City, to 3232 Euclid Ave.

Williams, Chas. S., Carrollton, to Nelson.

Zieber, W. H., Queen City, to Palo Alto, Calif.

OBITUARY

HENRY CONRAD SHUTTEE, M.D.

Every member of our Association will be grieved to learn that Dr. H. C. Shuttee of West Plains, President of our Association, 1914-15, died unexpectedly at a hospital in Chicago where he was undergoing treatment, October 12, 1921, from cancer of the throat, aged 63 years. While it was known that his condition had interrupted his practice for quite a while, he had shown so much improvement during 1921 that it gave his friends and physicians ground to hope that the condition could be alleviated sufficiently to enable him to re-enter practice. In fact after a winter in Florida and a period of treatment, he returned home and had taken up his work on a limited scale. He was undergoing a course of treatment at Chicago when the sudden call to a higher and better sphere came to him.

When a young man Dr. Shuttee attended the School of Mines at Rolla, Mo. In 1877 he began the study of medicine with his brother-in-law, Dr. H. T. Smith. Later entered the Missouri Medical College of St. Louis and graduated in the class of 1881 with high honors, standing second in a class of 119. Dr. Shuttee was one of the best read and most thoroughly informed men in the

community, his library being the most complete one in West Plains. He was a self-made man and worked his way up to the front ranks of his profession through his own efforts. He was a devout member of the First Presbyterian Church and was an early member of Mt. Zion Lodge, A. F. & A. M., of West Plains. For many years he was a member of the board of pension examiners, surgeon for the Frisco Railroad, and held membership in the National Association of Railway Surgeons, a Fellow of the American Medical Association, member of Southwest Missouri Medical Association, of which he served as president during one year, and member of several special medical societies.

He was one of the most active members in our Association, always lending himself to the interest of the organization and of the members of the Association and served as president of the County Medical Society as well as in other capacities, was councilor of his district for many years and attended the meetings of the Association with almost uninterrupted regularity until the affliction which overtook him made it impossible to undergo the exertion of going to the meetings.

BERNICE B. BARR, M.D.

Dr. Bernice B. Barr, of Clinton, a graduate of the Bellevue Hospital Medical College, 1880, died at his home October 31, 1921, from injuries sustained in an automobile accident, aged 64 years. Dr. Barr was one of the prominent physicians of Henry County and had earned the confidence and esteem of his confreres and of citizens in his community, and his death will be a severe loss not only to the people in his community but to the medical profession. He was a devoted member of Henry County Medical Society and a consistent supporter of all movements that promised to improve the welfare of the people and uphold the dignity of the medical profession. The Henry County Medical Society adopted the following resolutions in respect to his memory:

Resolved, As death has again thinned our ranks we wish to give this testimonial of our high esteem and most respectful regard for our comrade, Dr. Bernice B. Barr, who died October 31; who during life was at all times a devoted husband and father and a kind, helpful and considerate physician. We extend our deepest sympathy to his family, whose bereavement is the greatest, and to the public who will miss his many helps in his strict attention to their needs.

CORRESPONDENCE

AN APPEAL FOR STUDENT NURSES

St. Louis, December 10, 1921.

To the Editor:

All hospitals throughout the country have suffered a great loss and inconvenience in the past two or three years by not having a sufficient number of student nurses in the training schools to carry on the work.

In war times, government positions and other positions were filled by young women during the absence of young men who had entered service for their country, and it was almost impossible for hospitals to secure the requisite number of nurses to carry on the work properly. This condition has not changed sufficiently at the present time to bring to the hospital young women to engage in the art of nursing. There is no profession equal to it in the way of remuneration, to say nothing of the service rendered to suffering humanity, and I believe more of our young women could be induced to take up this work.

The Missouri Baptist Sanitarium needs twenty-five more student nurses to enroll in the class which will be open about the middle of January.

We have a first-class, accredited training school and I think the inducements offered here are equal if not superior to the majority of schools. This appeal is made to the doctors throughout the state and I trust that they may help us in securing young women for this work. The age requirements are from 18 to 35 years; two years' high school work are the educational qualifications. More detailed information will be furnished upon request.

MISSOURI BAPTIST SANITARIUM,

B. A. Wilkes, M.D.,
Superintendent

MISCELLANY

THE MISSOURI STATE CONFERENCE FOR SOCIAL WELFARE

The Missouri State Conference for Social Welfare held its twenty-first annual meeting at St. Joseph, November 13-15. The meeting was noteworthy on account of speakers of national reputation that were on the program.

Miss Emma O. Lundberg, director of the division of social service in the federal children's bureau, spoke on "Juvenile Courts, Present and Future." Chas. F. Weller, of the American Play Ground and Recreation Association, spoke about recreation and community life in the towns and country districts. Major W. H. Parker, secretary National Conference of Social Work, spoke about "The Relation of

the Social Worker to Modern Life." He gave a very inspiring message that placed before the social worker a high ideal for his profession. In fact, he made the hit of the conference. Eugene K. Jones, ex-secretary of the National Urban League, spoke on the same program with Mr. O. J. Hill, a business man from Kansas City, on the subject of Inter-racial Co-operation. Mr. Jones represented the point of view of the negro, and Mr. Hill the point of view of the white people. These addresses were given at the opening session and were attended by about 500 people, the audience being almost equally divided between colored and white people.

The conference tried its first experiment in what might be called section meetings. Each of the six committees of the conference held round table discussions of the situation in their respective fields, and then the chairman of each committee gave a report of the situation in the state, and of the conclusions of the round table before a general session of the conference. There was some doubt as to whether the size of the conference would be sufficient to warrant dividing it into section meetings, but each section meeting was pronounced a success.

St. Joseph had much of interest to show the visitors. Her social welfare board is a combination of county and city work, and receives funds from both sources. Its superintendent, Miss Eva M. Marquis, has made a conspicuous success of the work of the board. Under her leadership a former market house belonging to the city has been converted into a community building which houses most of the social agencies of the city and has a lot of community center activities. Miss Marquis was elected president of the conference at this session.

The new county almshouse set a fine standard for other counties of the state. A special effort was made to bring to the conference delegates from the counties outside of the large cities, and there were more people from smaller towns than usual. One whole afternoon session was given to the discussion of the new law for county superintendents of public welfare. Eight counties have taken advantage of the law and appointed county superintendents.

The next conference is to be held in Jefferson City.

The other officers besides Miss Marquis are: First vice president, Scott R. De Kins, St. Louis; second vice president, Bessie A. McClanahan, St. Louis; secretary-treasurer, L. A. Halbert, Kansas City.

MEASURES FOR INCREASING THE SUPPLY OF COMPETENT HEALTH OFFICERS.—The demand for qualified health officers already exceeds the supply and the rapid expansion of public health activities will be limited by the supply of qualified health officers to a much greater extent than by a lack of funds, says John A. Ferrell, New York (*Journal A. M. A.*, Aug. 13, 1921). Measures that have suggested themselves for increasing the supply of qualified men are: (1) the divorce of health work from politics; (2) increase in the compensation of health officers; (3) the acquainting of students, medical and academic, with the opportunities for careers in preventive medicine; (4) provision of advanced training in public health in a few institutions well equipped and strategically located; (5) teaching of public health in medical schools; (6) encouragement of federal and state institutes for training health workers; (7) education of the public to understand and value health work, and (8) provisions of scholarships and fellowships in schools of public health for present and prospective health officers.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.

Montgomery County Medical Society, Dec. 15, 1921.

Chariton County Medical Society, Dec. 23, 1921.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-First Meeting, October 10, 1921

1. EXHIBITION OF CASES.

A. A CASE OF REFLEXA PLACENTA.

—By DR. O. H. SCHWARZ.

The specimen in this case consists of a supravaginal uterus with a myomatus nodule springing from the posterior and left lateral portion of the uterus along its entire length. The nodule is 10 cm. in diameter; it is a myoma and shows no evidence of degeneration in the gross or microscopically. The uterine wall has been opened along the anterior border. The wall is very much thickened and measures 3 cm. in thickness, the endometrium measuring one-half cm. in diameter, and has a soft, velvety appearance. Projecting from the posterior and right upper portion of the cavity of the uterus is a sac which has been opened along its anterior free surface. This sac was intact at operation and on opening it afterwards an embryo was removed from within the cavity. The specimen was presented to me by Dr. George Ives, who received it minus the embryo.

The sac now represents a mass about $3\frac{1}{2} \times 3$ cm., and is lined by a smooth surface within and covered externally by a smooth surface also. Microscopically the smooth surface within proves to be amnion and the external smooth surface the decidua capsularis or reflexa. The cord is implanted directly opposite the attachment to the uterine wall, in other words, about in the center of the decidua reflexa. The clinical history suggests in this case that the patient was between ten and twelve weeks pregnant. There had been no menstrual period since the early part of July, 1921, and the patient was operated on for a myomatous uterus about the first of October, 1921.

This specimen is of interest in the first place because it represents one of two things. In the first place it answers the description of the so-called reflexa placenta of Hofmeier, and had the pregnancy continued and the chorion continued its development at the attachment of the umbilical cord a placenta praevia of some type would have resulted after the union of the decidua capsularis and the decidua vera. Secondly, had the pregnancy continued and had the chorionic villi degenerated over the area of the decidua capsularis there would have developed a so-called velamentous insertion of the cord. Franque, in 1900, had suggested this origin of velamentous insertion of the cord.

On microscopic section the chorion is attached to a decidua reflexa which is rather thin, the blood supply at this site is very meagre, much less than we see in a normally developing placenta site. It may be quite possible that such a developing placenta could be the cause of some fetal deaths and some of our early miscarriages.

B. CHRONIC STAPHYLOCOCCUS AUREUS MENINGITIS.—By DR. A. F. HARTMANN.

V. H., a girl of five years, was admitted into the hospital with the history of stiff neck, fever and backache of one week's duration, following the development and spontaneous rupture of a large boil over the left scapula. The history previous to this is unimportant. On admission the temperature was 39° C. and the positive physical findings were a general glandular enlargement, slight painful nuchal rigidity, hyperactive tendon reflexes, and a positive Babinski on the left. The Kernig was not definitely positive. There was no ankle clonus, or gross sensory changes. The pupils were equal and reacted normally to light and accommodation. The right fundus and disc were normal. The left fundus showed tortuosity of the vessels and the edge of the left disc was not as sharply outlined as on the right. The leucocyte count was 15,800 with 60 per cent. polymorphonuclears. The blood culture was negative. Turbid spinal fluid not under increased pressure containing 3200 cells, 95 per cent. of which were polymorphonuclears, was obtained on lumbar puncture. Direct smears of the centrifugal sediment showed no organisms, but culture showed a pure growth of staphylococcus aureus. Antimeningococcus serum was given intraspinally at 24-hour intervals for four injections. The temperature during this time varied from 37.6° C. to 40.6° C., being highest in the evening. The patient remained in the hospital for seven weeks, during which time she continued to have a septic type of temperature curve, but was otherwise practically symptomless. Occasional lumbar puncture was necessary to relieve an inconstant but rather severe headache and stiff neck. The spinal fluid from six such punctures showed a growth of staphylococcus aureus. At the end of seven weeks the temperature was remaining normal and the patient was in apparent good health, but the spinal fluid still showed 1000 cells of the same type. At this time the left disc margin was somewhat more blurred than on admission, and the Babinski on the left was replaced by an inconstant extensor response on the right. The patella reflexes were much less active. The patient is now coming back to the hospital for observation every two weeks. In addition to a diffuse meningitis, one must consider in this case the possibility of an abscess well localized in some position of the central nervous system which discharges staphylococci into the spinal fluid. There are, however, no localizing signs of such an abscess.

DISCUSSION.

Dr. Ernest Sachs: In my experience this is a very extraordinary condition. The thing that is particularly interesting is whether this organism was an avirulent one or whether the child developed enough immunity to take care of the infection. Another interesting point to consider is whether this meningitis was secondary to the abscess on the back or whether the child had a brain abscess to start with and this ruptured and produced a secondary meningitis. The only neurological symptom that suggested the possibility of this latter theory was that one eye ground showed more disc than the other. The child at present seems practically well and therefore it is impossible at the present time to make a positive diagnosis regarding a brain abscess.

C. HERNIA OF THE RIGHT LUNG.—By DR. E. A. GRAHAM.

Male patient, age 38, born in Switzerland.

For the last six or seven years has had a large

lump in the mid-line of the neck which could be inflated and also made to disappear at will. This was a soft mass about the size of an orange, part of which seemed to be connected with the thyroid gland, but part of which was independent of the thyroid. The mass was suddenly noticed one day while the patient was blowing a clarinet. It produced few symptoms except for slight pressure effects and a slight irritating cough.

Physical examination except for the lump in the neck was negative.

Bronchoscopic examination by Dr. Arbuckle failed to reveal any pouch connected with either the esophagus or trachea.

A lateral X-ray view taken by Dr. Moore showed a triangular shaped shadow coming up into the neck with the apex uppermost. This mass evidently contained air and could be inflated or emptied by either blowing against resistance or a sucking motion.

The tentative diagnosis of hernia of the lung was made and an operation was carried out under local anesthesia. The incision was made along the inner border of the right sterno-mastoid muscle. A slight enlargement of the right lobe of the thyroid was found which contained a cystic adenoma. The enlarged right lobe was removed and the patient was asked to inflate his neck in a manner similar to what he had done before operation. With each inflation the right supra-clavicular region became distended by a mass which showed distinct crepitation. It was felt that this mass must be a hernia of the lung through Sibson's fascia. The pleura, however, was intact over it. It was impossible to cover the apex of the pleura properly with muscle although attempts were made to do so. Finally, the wound was packed with iodoform gauze with the expectation that firm adhesions would follow which would hold the lung in place.

The wound healed rapidly and the patient was seen again three weeks after the operation at which time he stated that he was no longer able to inflate his neck as he had been able to do before. This fact seemed to confirm the previous diagnosis of hernia of the right lung.

DISCUSSION.

Dr. J. J. Singer: The first suspicion on looking at this man was that he had a hernia of the lung at the apex. However, the goiter or the enlarged thyroid seemed to cast a shadow over the hernial sac. The X-ray plates and inspection were not sufficient to justify a diagnosis without an operation.

Professor Sahli, in his book on "Physical Diagnosis," mentions a case somewhat similar, which proved to be a hernia of both apices.

2. THE DISTRIBUTION AND EXCRETION OF ARSENIC AFTER INTRAVENOUS ADMINISTRATION OF ARSPHENAMINE IN CHILDREN.—By DR. P. C. JEANS and DR. S. W. CLAUSEN.

Arsphenamine in a dosage of 10 mg. per kg. of body weight was injected intravenously. One-half hour after the injection, 90 per cent. of the arsenic had left the circulation. The corpuscles were nearly arsenic-free. Penetration of arsenic into the spinal fluid occurs in most cases; it is greatest in those showing evidences of meningeal irritation and diminishes with the age of the patient and with each succeeding injection of arspenamine. The amount present is at least as great as would be injected by the Swift-Ellis method. After the injection of arspenamine in kittens, the liver and intestines show the highest arsenic content. Arsenic is practically absent in the brain, skin and muscles. In human

subjects, five times as much arsenic leaves the body in stools as in the urine. The excretion can be detected for two or three weeks. Even at this time, about 50 per cent. of the arsenic remains in the body. The hourly rate of excretion in the urine shows a rapid fall during the first day. In five out of six cases, a rise is observed in this rate during the third day. This secondary rise is interpreted as being due to the excretion of some other arsenic compound than arsphenamine.

3. X-RAY EVIDENCE OF ABNORMAL SMALL INTESTINAL STATES EMBODYING AN HYPOTHESIS OF THE TRANSMISSION OF GASTROINTESTINAL TENSION.—By DR. R. WALTER MILLS.

Deficiency of our knowledge concerning small intestinal normal and abnormal conditions both clinical and roentgenological, with the exception of those of the duodenum, to a degree of the terminal ileum, and of gross obstructive states. Statistics of incidence. Evidence of organic pathological states affecting the small intestine. Obstructive and non-obstructive, carcinosis, tuberculosis, exudative peritonitis, etc.

Principles concerned in the recognition of abnormal small intestinal functional states. The relation of small intestinal form tonus and motility to bodily habitus as constant as in other portions of the alimentary tract. Principles concerned in small intestinal hypomotility. Divulsion of sphincters as the result of increased intra-alimentary tension and the consequent distant transmission of such tension to the causation of proximal motor delay through recoil. The appendix as a barometer of intra-intestinal tension. Small intestinal stasis unrecognized because motility not on same time ratio as that of colon. Colonic peripheral motility the means of transmission of intra-colonic tension throughout the colon and secondarily to the small intestine.

X-ray evidence of motor impairment of the small intestine as from distal colonic obstruction, lack of cecal elasticity and chronic appendicitis, as the result of colonic functional hypomotility. Evidence of disturbed small intestinal motility in diarrhea and achylia. Small intestinal hypomotility possibly the essential factor in the functional dyspepsias.

CLINTON COUNTY MEDICAL SOCIETY

The Clinton County Medical Association met in regular session at Cameron, December 3, 1921, and elected the following officers for the ensuing year: President, Dr. O. E. Schoenfelt, Lathrop; vice president, Dr. I. T. Kinsey, Lathrop; secretary and treasurer, Dr. M. L. Peters, Cameron; delegate to State Association, Dr. M. L. Peters, Cameron; alternate, Dr. C. W. Chastain, Plattsburg.

M. L. PETERS, M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in regular session in the High School Building at Clinton, Wednesday, November 16. Present, Dr. J. G. Beaty, president; Drs. J. R. Hampton, F. M. Douglas, J. R. Wallis, R. D. Haire, E. C. Peeler, W. R. Campbell. Visitors, Drs. C. K. Smith of Kansas City and I. W. Smith of Ohio, Mo. The meeting was called to order at 2:25 p. m. and minutes of the previous meeting read and approved.

Dr. C. K. Smith gave a lecture on "Disorders of the Ureters" and associated renal conditions, which was exceedingly precise and explanatory, with plain

and concise treatment. The lecture was illustrated by lantern slides. Several members remarked that this was the best presentation we had listened to for some time, and all were interested and profited in listening to it.

Upon motion of Dr. Haire the following resolution of respect was adopted in memory of Dr. B. B. Barr:

"Be It Resolved, As death has again thinned our ranks we wish to give this testimonial of our high esteem and most respectful regard for our comrade, Dr. Bernice B. Barr, who died October 31; who during life was at all times a devoted husband and father and a kind, helpful and considerate physician. We extend our deepest sympathy to his family, whose bereavement is the greatest and to the public who will miss his many helps in his strict attention to their needs."

A signed copy was ordered sent to the family.

The secretary made a report of the increase in dues to the State Medical Association and what ought to be done with our expense account. A motion carried to add one dollar for County Society purposes.

The election of officers was next in order and resulted as follows: J. R. Hampton, Clinton R. F. D. No. 1, president; Robert D. Haire, Clinton, vice president; F. M. Douglas, Clinton, secretary-treasurer; J. G. Beaty, Clinton R. F. D. No. 2, delegate to State Association; J. R. Hampton, Clinton R. F. D. No. 1, alternate delegate to State Association; E. C. Peeler, censor for three years.

A vote of thanks was extended Dr. Clinton K. Smith, for his kindness and he was elected an honorary member. Dr. J. Ward Smith was also elected an honorary member.

It was ordered that all members now in arrears for dues for this year should be dropped.

F. M. DOUGLAS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its twenty-sixth meeting in regular session, Tuesday, November 8, at the Y. M. C. A., Joplin, Dr. Grantham in the chair. Members present, Drs. S. H. Miller, Jas. B. Williams, L. C. Chenoweth, E. D. James, M. C. Shelton, J. F. Morgan, P. L. Pritchett, B. A. Dumbauld, J. W. Barson, H. D. McGaughey, J. A. Chenoweth, A. B. Clark, J. I. Tyree. Visitors, Drs. Kissel and Barnett.

Dr. McGaughey read a paper on radium, covering the history of the discovery of radium, a description of its rays and their action, and outlined the different types of cases in which radium could be used to advantage. The paper was discussed by Drs. L. C. Chenoweth, Pritchett, Williams and Shelton.

Meeting of November 15

The Jasper County Medical Society held its twenty-seventh meeting for the year 1921, Tuesday, November 15, at the Y. M. C. A., Joplin, Dr. Grantham, the president, in the chair.

Dr. J. B. Woods of Kansas City addressed the Society on "Vitamins." His address was illustrated with lantern slides and proved very interesting. The address was discussed by Drs. Moody, Clinton, Lauderdale and Kissel.

Dr. Cameron of Pittsburg, Pa., gave a brief address on "Cancer." Dr. Cameron stated that the word cancer should be left out of the nomenclature and the word malignancy adopted, and conditions referred to as first, second and third degree malignancy. That in first degree malignancy the method of treatment might be left to the patient—that is, if the face was involved the patient would probably

want to use radium as it does not scar. In second degree malignancy or borderline cases radium should always be the agent of choice.

The applications of Drs. C. B. Taylor and E. J. Burch were read for the first time.

Attendance, thirty-seven.

JAMES I. TYREE, M.D., Secretary.

LAWRENCE-STONE COUNTY MEDICAL SOCIETY

The Lawrence-Stone County Medical Society met at Aurora, Tuesday, December 6, 1921, at 7 p. m. The following physicians were present: Drs. T. T. O'Dell, R. C. Robertson, T. D. Miller, D. C. Adams, F. S. Stevenson, R. W. Smart and R. D. Cowan of Aurora; Drs. C. W. Shelton, W. I. Fulton and W. S. Loveland of Mt. Vernon; Drs. L. L. Henson, J. C. Doggett and H. L. Kerr of Crane; Dr. W. N. Deatherage of Galena; Dr. St. Clair Shumate of Reed's Springs; Dr. J. W. Barker of Marionville; Drs. H. A. Lowe, G. B. Dorrell, M. C. Stone, J. E. Dewey, C. A. Moore, J. A. McComb and Paul F. Cole of Springfield.

The following officers were elected for the year 1922: President, Dr. W. I. Fulton; vice president, Dr. J. W. Barker; secretary, Dr. R. C. Robertson; treasurer, Dr. W. S. Loveland; censor, three years, Dr. H. L. Kerr; censor, two years, Dr. R. D. Cowan; delegate, Dr. T. T. O'Dell; alternate, Dr. H. L. Kerr.

The following program was rendered: The Physician as a Sanitary Officer, Dr. J. W. Barker. Some Phases of X-Ray Diagnosis, Dr. J. E. Dewey. Report of Case, Dr. D. C. Adams. Report of Cases, Dr. R. D. Cowan. After some discussion a motion was made and seconded that the Society meet monthly instead of quarterly. Motion carried.

The next meeting will be held Tuesday evening, January 3, 1922.

R. C. ROBERTSON, M.D., Secretary.

MARION COUNTY MEDICAL SOCIETY

The Marion County Medical Society met at Hannibal, December 2, and elected the following officers for 1922 unanimously: President, E. E. Waldo, Hannibal; vice president, Clyde W. Hamlin, Palmyra; delegate for two years, Thos. A. Roselle, Palmyra; alternate delegate for two years, Thos. C. Chowning, Hannibal; secretary-treasurer, Mary S. Ross, Hannibal.

MARY S. ROSS, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society held its regular monthly meeting Wednesday evening, November 16, 1921, with 27 members and visitors present as follows: Drs. D. A. Barnhart, L. A. Bazan, C. B. Clapp, G. O. Cuppidge, C. K. Dutton, T. S. Fleming, G. Lokke, M. E. Lousely, F. L. McCormick, O. K. McGee, J. Maddox, L. O. Nickell, S. T. Ragan, R. D. Streeter, C. C. Smith, S. P. Towles, R. A. Woods and C. H. Dixon. Visitors, Drs. A. H. Hamel, E. J. Goodwin and E. F. Schmitz of St. Louis; A. R. McComas, Surgeon; J. D. Brummall and G. W. Hawkins of Salisbury; P. C. Davis of Madison, and Dr. J. D. Hammett of Moberly who still maintains a lively interest in medical progress although he has retired from active practice. On the arrival of Drs. Hamel, Goodwin and Schmitz they were escorted to the Chamber of Commerce rooms where plates had been laid for 28 and a menu of chicken, dressing and gravy and all the

other good things that go with such was the spread, and for the next hour the filling of the inner man was the principal order of business. (What became of that twenty-eighth plate will have to be explained by Dr. Goodwin.)

After dinner Dr. Schmitz gave a splendid and very practical talk on "Some Practical Points on Obstetrics and Gynecology." Drs. Hamel, McComas and Goodwin spoke of the work being done by the State Medical Association and encouraged the County Society to interest itself in all public health and professional activities. On motion the Society approved the referendum on Senate Bill No. 433.

Dr. Hawkins of Salisbury presented a very interesting case of a man with that very rare disease "Myasthenia Gravis." This was quite interesting and instructive. The meeting was declared by many to have been one of the very best the Society has ever had. A rising vote of thanks along with an earnest invitation to visit us again at an early date was given to our visitors and about midnight adjournment was made until the regular time in December.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Association met in the office of Dr. J. A. Fuson at Mansfield, Wednesday, November 23, 1921, at 1:30 p. m., the meeting having been postponed from the regular date November 3 on account of the Southwest Missouri Medical Society having been in session at Springfield on that date and several of our members in attendance there.

Those present were Drs. R. A. Ryan, L. T. Van Noy, and J. B. Little of Norwood; J. A. Fuson and R. M. Rogers of Mansfield; J. L. Gentry and R. M. Norman of Ava; B. E. Latimer of Hartsville, J. R. Davis of Noble, A. C. Ames of Mountain Grove, E. J. Goodwin, secretary of the Missouri State Medical Association of St. Louis, and H. A. Lowe, Paul F. Cole and J. E. Dewey of Springfield.

The meeting was called to order by J. A. Fuson, the president, and the minutes of the last meeting were read and approved.

Dr. J. B. Little of Norwood presented an application for membership in due form and the Society voted to authorize the secretary to cast the vote of the Society for his election to membership.

In view of the fact that the State Association at its last meeting raised the dues from \$3 to \$5 it was voted to amend our by-laws to make our dues \$6 instead of \$4, due notice of such action being contemplated having been sent to all members previously.

Dr. Cole read a paper on radium in which he dealt chiefly with a discussion of the diseases that may be benefited by radium and the results that may be expected. The discussion by the members present was quite general and dealt largely with the subject of cancer and the importance of treating precancerous conditions while amenable to treatment with reasonable prospect of cure.

Dr. Van Noy read a paper on smallpox and reported the existence of several cases in his territory. Cases in some other parts of the country were reported in the discussion, but no deaths were reported.

Dr. Latimer read a most excellent paper on diabetes mellitus and reported on his own personal condition. His paper showed that he had made a most thorough study of the subject and had been able to greatly improve his own health. He seemed to feel much encouraged to believe that his life would be indefinitely prolonged, but that he must never relax his vigilance on the subject of diet or consider himself absolutely cured.

This being the regular date for the election of officers, the following were elected: R. M. Norman, Ava, president; L. T. Van Noy, Norwood, vice president; A. C. Ames, Mountain Grove, secretary-treasurer; I. L. Gentry, of Ava, censor for three years; A. C. Ames, delegate to State Association.

A vote of thanks to the visiting physicians for their part in the program and making them honorary members was adopted, which was responded to by them with an expression of thanks for the privilege of meeting with us.

Dr. Goodwin then gave a talk on the work of the State Association and the benefit it is to the profession and to the public and the importance of each county society keeping up its part of the work.

The meeting then adjourned to meet at Mountain Grove the first Thursday in February, 1922.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

A PHYSICAL INTERPRETATION OF SHOCK, EXHAUSTION, AND RESTORATION. An Extension of the Kinetic Theory. By George W. Crile, M.D., Senior Consultant in Surgical Research A. E. F., 1917-1918; Professor of Surgery, School of Medicine Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland, Ohio. Edited by Amy F. Rowland, B.S. Original illustrations. Cloth, pp. 232. London: Oxford University Press, American Branch, 35 West 32nd St., New York, 1921. Price, \$8.75.

In this publication Dr. Crile has offered a carefully worked out physiological problem. His previously published ideas developed in connection with his theories of shock and of anoci-association are largely incorporated in this work, but there are certain thoroughly new data of distinct value. Especially would we mention the sections showing the effects of exhaustion, hunger, emotion and shock upon the brain cortex of man. This material has been made available during the war. It complements the data previously derived from experimentation upon lower animals, and clinches this part of Crile's argument. Dr. Crile has been fortunate in his publishers, who have supplied a beautifully printed page, a wealth of excellent illustrations, and a volume easy and pleasing to hold.

W. J. F.

MEDICAL NOTES. By Sir Thomas Horder, M.D. (Lond.), F.R.C.P. (Lond.). Physician with Charge of Out-Patients to St. Bartholomew's Hospital. Publishers: Oxford University Press, London; American Branch, 35 West 32nd St., New York.

This small book is a very instructive collection of salient clinical points and valuable diagnostic hints, gleaned from the lectures and dropped by informal remarks during the ward rounds of the author.

The introduction is significant in its appeal to consider diagnosis not merely as the name of a particular disease, but as a conception of a sum total of all the phenomena resulting between the individual and all the various pathologic influences to which he is reacting. Emphasis is likewise laid upon the greater relative value of one positive physical sign over the presence of many symptoms. Though dogmatic, this principle can scarcely be over-emphasized.

On the whole, this small book is extremely interesting and worth reading, being more or less a medical analogy to "Surgical Notes" by Bernays and Coughlin.

O. P. J. F.

INJURIES TO JOINTS. By Col. Sir Robert Jones, Inspector of Military Orthopaedics, Army Medical Service. Second Edition. Second Impression. Publishers: Oxford University Press, American Branch, New York. Price, \$2.00.

This small book of 195 pages is very full of information gleaned from a long and large experience in both civil and military orthopedic surgery. The very first chapter teems with information and advice that should prove of much value to any practitioner, be he surgeon or not. Chapter II is a continuation of the general facts mentioned in Chapter I which the author wishes to impress upon the reader before dealing with specific injuries. It might be said that if the rules of diagnosis and treatment herein set down are followed, injured bones and joints will recover with less deformity and less disability than are now often found. A number of graphic and instructive illustrations add to the clarity of the text. This small volume should find a place on the shelves of every medical library.

It has been a real pleasure to read carefully what has been so unselfishly written by so noted an orthopedic surgeon.

C. A. S.

A PRIMER FOR DIABETIC PATIENTS. A Brief Outline of the Principles of Diabetic Treatment, Sample Menus, Recipes and Food Tables. By Russell M. Wilder, M.D., May A. Foley and Daisy Ellithorpe, Dietitians. The Mayo Clinic. 12 mo. of 76 pages. Philadelphia: W. B. Saunders Company, 1921. Cloth, \$1.50 net.

The diabetic patient should not suffer from lack of advice. There are now in print to the reviewer's knowledge five books designed to guide the diabetic in the way he should go. We have this year reviewed similar books by Joslin and Horowitz. This book from the Mayo Clinic has the merit of brevity—it is of 76 pages—and simplicity. It contains all a diabetic has to know.

L. C.

RESTORATION OF NORMAL CARDIAC MECHANISM IN AURICULAR FIBRILLATION BY QUINIDIN.—During the last three years, reports of eighty-three cases of auricular fibrillation treated with quinidin have appeared in the German literature; in forty-two (50.6 per cent.) the normal rhythm was restored. The duration of effect has usually been short, from a few days to a month. The longest period during which normal rhythm was observed was four months. The usual dosage employed has been 0.4 gm. by mouth three times daily before meals, or, less commonly, 0.2 gm. five times a day. Regularization of the rhythm has occurred, for the most part, on the second or third day of treatment, though as much as 11 gm. has on occasion been required to produce the desired effect. It has been found advisable to give a preliminary dose of from 0.2 to 0.4 gm. to test for the possible presence of an idiosyncrasy to alkaloids of the cinchona group, for in two cases in Frey's series, grave, though not fatal, symptoms, evidenced chiefly by depression of the respiratory center occurred after a total of 1.8 gm. had been given. Unpleasant effects such as palpitation, headache, diarrhea, nausea or vomiting have occasionally been noted. A tachycardia usually preceded the onset of normal rhythm. Robert L. Levy, New York (*Journal A. M. A.*, May 7, 1921), reports his experience in four cases. He concludes that the factors which determine the success or failure of quinidin in altering the mechanism of the heart are not clear. To achieve optimal therapeutic effects it seems reasonable, at least for the present, to administer as much of the drug in as short a period of time as is consistent with the factor of safety of toxicity.

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ORIGINAL ARTICLES

OUR OLD ENEMY—CANCER*

The Hodgen Lecture of the St. Louis Surgical Society

S. J. MIXTER, M.D.,

BOSTON.

In selecting me to deliver the Hodgen lecture for 1922 you have honored me far beyond my deserts, but it is an honor that I deeply feel and appreciate, however far I may fall short in my efforts to say something suitable for the occasion, to say something which the man whose memory we honor would approve were he with us today. One of our leading surgeons spoke of Dr. Hodgen as "one of the giants of the olden time"; but that is only partly true, for a man whose influence, teachings, and name are so well-known and followed forty years after his death must be classed as of the present.

It is more or less the custom to speak of the period of "modern surgery," meaning by that the few years that have elapsed since the date of his death in the early days of antiseptic surgery, and yet the foundations of so-called "modern surgery" were laid by men who knew not the germ nor the microscope—fearless, ingenious men, who knew their anatomy through long days and nights of anatomical teaching and dissection, skilful and rapid operators. I sometimes wonder if we, in these days of anesthesia and asepsis, have not lost something that it would have been better to have kept. There is no school so necessary to the would-be surgeon as the dissecting room and his instructors in that room should be surgeons, some of them at least. Dr. Hodgen was an anatomist, and, we may be sure, studied his operative surgery on the cadaver and not from diagrams.

Dr. Hodgen was typical of your great city;

like her, he stood at the gateway of the great West, with its enormous expanse and unlimited possibilities. Through that gateway flowed the stream of brawn and muscle, trapper and trader, explorer and farmer; and St. Louis with its commanding position, its rivers, its enterprise and its vigor, outfitted those who swelled that stream; and she supplied not only the physical needs of that great country, but furnished brains, intellectual development and teaching. Great men and great minds were needed in the work, and she furnished them. Doctors were needed for this vast and growing region, and she trained them and sent them forth on their good work, inspired and quickened by the teachings and example of their masters, and one of these never-to-be-forgotten masters was *JOHN THOMPSON HODGEN*, pioneer in surgery, pioneer in medical teaching.

In her early days St. Louis was a leader in the fur trade and a leader in medical education. Both positions she retains today. Reader pens, more fluent tongues than mine have told the story of Dr. Hodgen's life and achievements, a story that you all know so well. Enough for me to say that he was a leader because he was a practical man, one not deluded by fleeting professional fads, a man with the true mechanic's instincts and ability. He would undoubtedly have made a good carpenter or plumber, for, after all, what is a great surgeon but a good carpenter and plumber, added to sound surgical judgment and endless study. Summing up his character from what I have read and heard, I have felt that what may be called a practical paper, as distinguished from a theoretical or technical one, was best suited to this occasion even though it is, perhaps, elementary and more fitted to the ears and minds of a class of medical students than to this body of trained and experienced surgeons.

It is well occasionally to stop in our work and "take account of stock"; see just how the medical world regards a certain subject and what our individual opinions are on the basis of experience.

*Read before the St. Louis Surgical Society, January 4, 1922.

This paper deals with our old enemy, malignant disease. It is not a scientific or statistical paper; it does not go into the theories of the origin of malignant disease or its varying structure, and, in fact, offers nothing that is new. It is simply a general consideration of the subject by a surgeon after a fight of many years against an adversary that counts its victims by thousands and is still unconquered, though as the years go by they are marked by his gradual retreat.

I say "retreat" advisedly, for though statistics as now collected may show more deaths due to malignant disease than formerly, they are more accurate and cancer is more readily recognized than formerly. But, admitting for the moment that there are more cases of cancer beginning in the year 1921 than in 1821, or even in 1900, a much greater percentage will be cured now than formerly; and by "cured" I mean permanently cured, not operative recoveries for one, two or three years, but cured so that there is no recurrence for the rest of the patient's life.

The surgeon leaving his active professional life behind him regrets that he can no longer continue the fight against his old foe, but he welcomes an opportunity to fire at least one parting shot, though he may not be in the forefront of the battle.

During the past years, within my recollection in many cases, one disease after another has been practically overcome. Smallpox and diphtheria are no longer the deadly scourges as of old; syphilis, which is always with us, and always will be as long as unrestrained sexual impulses rule mankind, is now, under proper prophylaxis and treatment, less fatal than formerly; and, could the whole community be under military discipline as were our soldiers in the late war, would be reduced to a small percentage of its present proportions. Even tuberculosis may be cured; and yellow fever, to mention but one other, is a disease that is preventable; and all these diseases would almost cease to affect mankind were it not through carelessness, stupidity, or the gross misuse that some make of the minds that have been given them—for some men will never walk straight and must be led, some will never think straight and must be forced.

Many people, most people I might say, have a dread of cancer varying with the individual. To one it is simply a very indefinite something lurking in the shadows beside the path that they hope never to encounter; to another it is a real fear, an obsession from which the poor victim of cancerphobia is never free and which may ruin his life and makes him the easy prey of quacks and other people who cure or fail to cure some malady that never existed.

Now this instinctive fear of cancer if properly directed is one of our most powerful agents in the control and cure of the disease of which we are possessed; always assuming that this fear is kept in the right direction and properly governed. It is the proper training of this sense of fear that is doing so much good today and promises to do more in the future.

Were I asked to name the most important advance in this good fight I would unhesitatingly answer, "Education." Education of the surgeon, the physician and the public. The attempt at education is not a new thing by any means. In season and out of season the conscientious surgeon has for years been preaching against delay. The "near surgeon" and many physicians were unwilling to think of a possible operation until it had been made clear to their untrained minds that the trouble was surely malignant and that waiting meant the difference between operability and inoperability, between life and death.

The real systematic campaign in "cancer education" started, however, only a few years ago, beginning with the formation of the American Society for the Control of Cancer. From the start the influence for good of this society has steadily increased, its researches and educational methods have progressed and broadened, and many of the best medical minds in the country are at work on the problems that daily arise. The public is slowly, too slowly, learning to know and recognize certain danger signals; and people are more willing to ask the physician the meaning of symptoms and swellings that a few years ago passed unnoticed, or were regarded as occurring as a matter of course at certain periods of a person's life. Popular lectures, popular articles in magazines and newspapers, and house to house teaching by medical men, nurses and well-informed laymen are really beginning to have their effect, and it is to be hoped that they will in time prove of as much benefit as the teachings of the prophylaxis, recognition, and treatment of tuberculosis have done. Few today willingly or knowingly drink or give their children milk from tuberculous cows, confine a poor consumptive in ill-ventilated, close quarters, or live shut up with such a patient under such conditions. The time will surely come, it *must come*, when sane, sensible people will immediately consult a physician when they first discover a lump in the breast, an unnaturally bleeding uterus, an obstinate small ulcer on the lip, or digestive disturbances that do not yield to simple treatment in a short time. I remember when much time and the most persuasive powers of the surgeon were necessary to induce a patient with a diseased appendix

to allow its removal, and now one sees case after case where as much argument is needed to convince him that he had better keep that innocent, inoffensive organ in his abdomen instead of in a bottle. This is an error in the right direction; it is better to have too much good teaching than not enough.

The education of the medical profession in this matter is possibly more important and harder to accomplish. It is, I suppose, hardly to be expected that the so-called, or rather mis-called, conservative physician of my generation, or perhaps of yours, you younger men, can be taught that the time for a trained surgeon to see a case where there is the *slightest* question of cancer, is *when he, the physician, first sees it* and is not sure in his own mind whether it is malignant disease or not. Heaven help the patient if he is sent to a surgeon who does not himself know enough to find out the truth, or does not know enough to send him to someone who is able to make a correct diagnosis and advise the necessary treatment.

In the early recognition of malignant disease we have the greatest modern weapon in the defeat of cancer. Tell me, you men of our profession, yes, tell me you husbands and sons of the dead, is it not better to have had some comparatively simple, harmless operation done and discover that the growth removed was a non-malignant one, than to have had someone—the patient, or the doctor, or the surgeon—wait until there was no doubt and then, following a severe operation, watch the recurrence with all the suffering that it means. It is perhaps to be expected that today and now the average patient who comes into our large hospitals will have waited too long before spending the time or the dollar to get an opinion; but what about the private patient who depends on us and our opinion? Can anyone of us say that our hands are free from blood? What one of us can say that we have never lost patients because we did not appreciate the importance of symptoms? Heaven forbid that I should seem to advocate indiscriminate, unnecessary, useless operations! Surgery, like matrimony, should not be entered into unadvisedly or lightly, but soberly and discreetly, and I say this reverently, for what so sacred as the human life entrusted to our profession? There is a little book of 54 pages published by the American Society for the Control of Cancer that I wish might be put in the hands of every medical student early in his course. I would like to have the medical student read that book, whether he wanted to or not, until every sentence was fixed in his mind so that he could not forget it. It would help him in his after life, and it would help his future patients. We have all had it sent us and probably many of

us have dropped it into the waste basket with other pamphlets and advertisements. It is called, "What We Know About Cancer." It would do no harm if some of us older men read it often.

At any rate every member of our profession can help the good cause by doing everything in his power to support and encourage the national organization, and each in his community to spread its teachings.

Showing the importance of the early recognition of cancer and its early and thorough operation, is a wonderfully instructive analysis by Simmons and Daland of over 500 cases of cancer entering the surgical wards of the Massachusetts General Hospital, emphasizing many points in regard to delay in operation. These cases, remember, were only those in the surgical wards; and if to these were added the inoperable cases in the medical wards and those appearing in the out-patient department the figures would be much more startling. The average duration of the disease before operation is over a year; the time between the first symptom noticed by the patient and consulting a physician was 5.4 months, and the delay by the physician to advise operation was three months. From the time the operation was advised until it was performed was only .76 months, which is not long, as operations have to be planned for, the patient admitted to the hospital, etc. When we consider how soon glands and surrounding tissues may be involved, thus rendering a most radical operation uncertain as to its possibility of a permanent cure, you can see how many lives are lost by the delay. Less than one-half of these 500 cases were suitable for radical operation and only palliative operations or other measures could be employed. When we reflect that glandular extension of the disease may occur in situations like the mouth, lip, tongue and penis in a very few weeks, sometimes in four or five, we see how the chances of a radical cure are reduced. Cancer at the start is local and can be cured by adequate operation.

Among the well-to-do, educated, intelligent classes, the deaths from cancer should be much less than at present. Even in the large clinics for the poor and ignorant it is probable that better results will be obtained in time as the campaign of "Cancer Education" advances.

During the period covered by my professional life of over forty years, the progress in operative surgery has been enormous. In the pre-antiseptic days, large operations were attended with great risk to life, and operations for cancer were most inadequate and disappointing in their results. The old school surgeon removed a malignant breast through a small incision including little more than the

nipple, and if no markedly enlarged glands were felt the axilla was untouched. If large glands were detected they were generally fished out by the finger of the surgeon through the original incision. Then the pendulum swung too far the other way and, as the fear of sepsis diminished, extensive and radical operations were performed and for that matter are still performed, on cases that were absolutely unsuited for such treatment, absolutely incurable, and the patient was left in a worse plight than before while the end was not postponed. There is only one thing worse than unnecessary surgery and that is inadequate surgery. A man may be a skilful anatomist, a rapid dissector, a trained technician, a brilliant operator, and at the same time be a mighty poor surgeon. Brains are as necessary, more necessary, than fingers, and surgical judgment more than technique. Nature protects us from a few germs but she cannot protect us from an unwise surgeon. He is a menace to the community and to our profession. The true surgeon should never hesitate to perform any operation, however difficult or extensive, that offers a prospect of cure or relief, but he must refuse to listen to the prayers of the patient or his friends and attempt the impossible. It seems unnecessary to lay so much stress upon this point, but what community is free from such so-called surgeons?

What wonderful results of professional co-operation may we not hope for in the future. The family physician, the internist, the pathologist, the bacteriologist, the roentgenologist, and the surgeon, all working together for the same end—the welfare of the patient, which Dr. Oliver Wendell Holmes said was the first duty of the physician. One man cannot possibly fill all these places, and he is indeed a poor surgeon who is not willing to give his patient the advantage of the knowledge of each and everyone of these men when necessary. One of them, the pathologist, should always be at the elbow of the operator whenever he is dealing with malignant or possibly malignant disease. He must be a man thoroughly trained in the examination of fresh surgical specimens, one upon whom the surgeon can rely for a quick and accurate diagnosis. A short time ago such men were few, but, as time goes on, more and more pathologists are being trained in this special line of work and the microscope and the freezing microtome can always be at hand to be used if necessary.

One great advance of late has been in the study of pre-cancerous conditions. It is sure that cancer often starts in some spot of chronic irritation or inflammation, and it is equally sure that if that spot could be removed or healed, malignant disease would not occur. Say that

twelve thousand women die each year from cancer of the uterus; that means that this year there is an equal number of cases in the pre-cancerous or very early stages and, therefore, in a condition that promises almost sure relief by immediate operation. There is more reason for operating on a suspicious, bleeding, though non-malignant cervix, than to attempt a radical operation in advanced disease in the same organ. The long-standing foolish notions about strange things happening as a matter of course to every woman at the "change of life" is responsible for many deaths. A woman will perhaps speak of such matters to a female friend as ignorant as herself, but too often will not seek medical advice for fear of the absolutely necessary examination. Education is gradually progressing in this line, however, and it is to be hoped will produce better results as the years go on. Women are more willing than formerly, I think, to seek advice about lumps in the breast, though concealment is one of the symptoms of the painless beginning, or even advanced, cancer. In the last years of my surgical work I noticed that more and more women consulted me for mammary troubles and they came earlier in the disease. Many of these women, to be sure, were not cases of cancer, but might almost be called pre-cancerous, for they suffered from the bruised and sore breasts due to the prevailing type of corset that digs into, bruises, and irritates the gland without supporting it at all. A long article might be written about the dangers of the modern corset, and it could be illustrated by taking the cuts that can be seen in the advertising pages of the various popular and fashion magazines.

One serious handicap to popular medical education and oversight is the passing of that most honored, useful and desirable member of our profession—the family doctor. He was the adviser of the household in sickness and in health, a comforter in sorrow, a father confessor in time of trouble, and a friend always. One never hesitated to ask his opinion or advice. A modern city family may be treated by a squad of specialists without any commanding officer, and the worried mother knows not to which one to turn for advice for some little thing that she knows is not just right but about which she hesitates to speak to an almost stranger. The family doctor of the right sort is a real blessing and it is to be hoped will always be with us.

The best dentists and dental surgeons are now quick to recognize lesions of the mouth or jaws that are, or may become, cancerous. A large proportion of the early cases including leukoplakia come from them. They are quick to recognize irritation from mechanical causes,

such as sharp corners on teeth or ill-fitting plates, and take the proper measures to correct them.

Bloodgood's work on what may be called "preventive surgery" of the mouth is of great value. Leukoplakia, that frequent danger signal of probable malignant disease, is now recognized as something that though slight in itself, must be treated early, effectually, and sometimes frequently, or the very life of the patient will be endangered. This is one of the cases where fulguration, properly used, is of the greatest value. If the patches are large, a comparatively small area is best treated at a sitting until the whole field has been gone over, and the least sign of recurrence is to be watched for and removed in the same manner.

Of late the best surgical minds have come to believe that all tumors of the breast, to mention only one organ, are potentially malignant. We have all seen cases of apparently harmless mammary cysts that have existed for years and have been relieved by tapping when inconvenient on account of their size, suddenly take on a new and rapid growth and on operation they are found to be cancerous. The same is true of all tumors and swellings in the breast that are not transient, and they should be looked on with more than suspicion and be removed before we even think they are malignant. We cannot insist upon this point of early or pre-cancerous operation too strongly nor too often, for it is by these operations only that we can hope for a large percentage of real cures. If we wait until we are sure we shall, I fear, find ourselves willing to say as said in the 17th Century, that "Learned and Renowned Doctor, Lazarus Riverius, Sometimes Councilor and Physition to the King of France":

"By way of prognostication, we can only say this much, That cancer is incurable, be it ulcerated or not ulcerated, which as it is true of all Cancers, not excepting those on the outer parts of the body, much more is it true of a Cancer on the Womb;" and he adds what is true today of advanced malignant disease; "seeing then that a perfect Cure cannot be hoped for, we must content ourselves with such a Cure as is called *Palliative*, the scope whereof is, to hinder a not ulcerated Cancer from ulcerating and an exulcerated Cancer from becoming more exulcerated; and in both to allay and temper the extremity of the pain."

When an exploratory operation is absolutely necessary one rule should be rigidly adhered to—never cut through the suspected growth and wait for a day or two for a report from the pathologist. Even if the pathologist is present, as he always should be, the incision should be immediately followed by the application of the cautery or some similar agent to the cut surfaces. Whenever such exploration is necessary, everything should be in readiness

to complete the operation, be it local or extensive, for it has been shown over and over again that exploration with delayed operation is almost invariably followed by recurrence. Another fact should also be remembered, and that is, that rough handling or unnecessarily frequent examination of a tumor is most dangerous as manipulation may dislodge malignant cells which are carried on through the lymphatics. I have even seen breasts swollen, tender and ecchymosed from such examination by ignorant physicians; what treatment could possibly be worse? Few of us can look back over our lives without finding causes for deep regret, sins of commission or omission. One of my sins of commission was in describing what was sometimes called the "Mixer punch," a sharp, hollow tube with which a cylinder from a deep-lying tumor could be obtained as easily as a grocer cuts a cylinder from a cheese. Now I can imagine no instrument more fitted to do harm, to spread malignant disease, should the growth be other than benign. This only goes to show how our best intentions may be the cause of deep disaster, for we now know that the surgeon may implant cancer cells in the healthy tissues through the want of a proper anatomical technique and proper care. I am convinced that want of such proper care was, and is, the cause of recurrence in the scar following operation for early breast cancer where there was a sufficiently ample skin and tissue removal, and where there was no recurrence in the axilla, above the clavicle, or in the mediastinum.

What is a radical operation? It is one that aims to permanently cure the patient, and it is one that should not be employed where good surgical judgment tells us that we cannot, at least leave the patient better off and more comfortable. Where we hope and expect to cure a cancer by operation, let that operation go to the very anatomical limit. For a general rule "the smaller the cancer the more extensive the operation" is a safe one. Naturally this does not apply to small epitheliomas, rodent ulcers, and the like, but it does apply to cancer of the mouth, tongue, lip, breast, and many other organs. How few of us have had the good fortune to see and operate on cancers of the tongue, lip, or mouth in the first two or three weeks of their growth, and yet we know that we may have glandular involvement in these cases in four or five weeks, and these are anatomical situations in which new growths early attract the patient's attention, and for which he is apt to seek advice earlier than for those in less annoying positions. The man who is not qualified and ready to go to the anatomical limit should let such cases alone.

Whether ulcerating growths in the mouth

and other cavities lined with mucous membrane should always be removed by the cautery, does not seem to be definitely decided; many of our best surgeons recommend this method strongly. When we see the way in which so-called non-malignant papilloma of the bladder is scattered and implanted on the mucous membrane of that organ after excision or scraping, and how burning or fulguration of the same growth is not followed by such results, we can but think how much easier it must be for living cancer cells to be implanted on cut surfaces, and even mucous membranes, following incision. Further experiment in this direction is needed and will surely give definite results.

Experiment has been the agent that has brought about all the great advances in medical science; little good has come from haphazard guessing or "shot gun" prescriptions. All our successful serums, vaccines and antitoxins are the result of many experiments, deep thought, and careful observation. Such agents, to be sure, have as yet gained but little place in the treatment of malignant disease, and yet who can say that some such means may not be found in the future to solve the cancer problem? It is said that "606," the popular remedy for syphilis, was so-called because six hundred and five combinations were tried before the successful one was found.

And now I wish to speak of something that is a menace not only to progress in the study of cancer but a menace to the well-being of the world; something that applies to the study of growth, disease, preventive medicine and the relief of suffering. As I have said, in the seventeenth century learned physicians held the belief that every cancer was incurable and that the only thing to be done was "to allay and temper the extremity of the pain." Contrast this gloomy statement with what we can promise the patient today with a cancer in a fairly early stage, a cancer that has not been neglected or badly treated too long. It is not too much to say that early operation should save from death seventy-five per cent. of cases of cancer of the breast, for example, while mild forms of skin cancer may be cured by radium in proper hands. The percentage of cures is steadily rising, and with education, experimentation, and the means at hand, should rise much higher. But the progress will be slow and must receive every aid in our power.

Every operation, every application of radium or the X-rays may be regarded as in the nature of an experiment, and if, by study of methods on the lower animals, greater efficiency can be obtained, such studies should be encouraged.

And what is the present status of animal experimentation? Large numbers of mis-

guided people, not well informed though moved by a most commendable and splendid love for animals and a desire to save them from suffering, unfortunately led by mischievous and unscrupulous professional agitators, are urging the passage of laws that will stop not only legitimate investigation, but the manufacture and use of the various antitoxins, vaccines and serums that yearly save countless lives, not only of man but of animals as well. Think of the diseases that are checked, cured, almost wholly banished by these means. Is it not worth the lives of a few animals, most of whom are neglected waifs and doomed to death? It is hard to understand the state of a person's mind who can see a child dying of diphtheria, of smallpox, and refuse life and health to that child because it is bought at the price of animal suffering. These things that save life and health are not fancies of the imagination; they are hard facts, scientifically proved and accepted by intelligent people who recognize the existence of pain, and sickness, and death.

As a prominent physician once said, in effect, to a parliamentary committee on this subject: "Vivisection must and will go on, for the science of medicine must progress. Is it not better that experimentation be on the lower animals rather than on you, your wives and your children."

Conscientious experimenters do not do their work for sport any more than the conscientious surgeons operate for sport—but to save life. Think of the suffering and death of Walter Reed, who risked his life, and lost it, to prove one of the great facts in medicine. Could this fact have been proved by animal experimentation, as many facts may be, would it not have been better to sacrifice countless animals rather than this splendid life? There are many experiments, so-called, going on today at the expense of animal life and suffering, if you will, that will save lives like his as well as of other men, women and children.

Antivivisection has a considerable following, and the medical profession as a body must combat their false doctrines and false statements. We have all, I hope, tried to do so in the past, but in a careless, haphazard manner.

There is a "Bureau of Protection of Medical Research" of the American Medical Association which is doing splendid work, but this is not enough and does not free us from our duty as individuals. What is needed is a body made up of every member of our profession, yes, of every thoughtful, well-meaning man and woman in the land who has the well-being of animal life at heart. The health of man and the lower animals is so closely related, so interwoven one with the other, that the general public is as directly interested as the medical

man. There are, unfortunately, those who do not recognize the possibility of disease, who do not admit that diseases like smallpox, yellow fever, typhoid and diphtheria, have lost most of their terrors. Are hog cholera, bovine tuberculosis, and rabies to go unrecognized, and untreated in a scientific manner, because certain misguided individuals object to animal experiment and inoculation? Think of the enormous loss of animal life with all the suffering that would go with it; think of the millions in money that it would mean to the farmers of the country, to say nothing of the danger to man!

These foes of progress are well organized and with great financial resources. We must no longer be content to stand on the defensive; we must unitedly fight to educate the community in what we know is merciful and right.

Boston, though sometimes supposed to be the home of fads and fancies, of Christian Science and quackery—Boston, I am glad to say, contains many sane, intelligent and humane people, and some of them, not members of the medical profession but recognizing the seriousness of the situation, are organizing a Committee for the Protection of Animal Experimentation, to fight falsehood with fact, and sentiment with sense. This is a great advance in the right direction and it is to be hoped that this committee may prove the starting point of a great nation-wide society which shall include friends of man and beast from all classes, the layman as well as the physician, the merchant, the manufacturer, the man who raises cattle, horses, hogs, cotton, fruit and other products of the soil, for all those people are vitally interested in the results obtained. Lastly, success in this cause will aid those who are giving so much of their lives to the study of the dread disease that claims over 80,000 victims annually in this country.

Probably ever since malignant disease was first recognized attempts have been made to cure it by drugs of all sorts, by external applications, both innocent and dangerous, by cautery and escharotics. There is no field in which the charlatan has carried on his nefarious calling to such advantage—to himself. The natural fear of cancer, the dread of the "surgeon's knife" (perhaps not unnatural) have driven countless victims to seek the aid of those who claim to cure the dread disease by what they call milder measures than those used by the surgeon. Innocent bunches called cancer are removed by "plasters" which give the patient a thousand times more pain than a simple operation, while the really malignant growth is made to grow much more rapidly than it would if let alone. There is a new quack in the field, the quack who claims to cure by means of the

X-ray or radium, the ignorant man who may or may not possess a medical degree, but who has no knowledge of the forces that he claims to employ; whose X-ray machine is a farce, and whose radium exists only in the imagination. Using, or claiming to use, these remarkable agents as a blind, makes these men doubly dangerous to the community, as they not only fail to cure disease but bring discredit on the means that, when employed by honest men and more skillful hands, are potent for so much good.

What better place to speak of the legitimate use of these tremendous therapeutic agencies for good or evil, than this? Like steam they possess great power, but like steam they must be properly controlled and directed or dire disaster is sure to result; even yet there are few men who are fitted to handle them. The first enthusiasm roused by their discovery was the cause of more harm than good, and it is not too much to say (and this is particularly true of the X-ray) that for the first few years of their use, more lives were lost than saved. This was due largely to the then undiscovered, still undiscovered, knowledge of their powers and limitations, and of the over-enthusiasm of their users. Thousands of lives were lost because early cases were treated by X-ray that should have been operated upon, until, stimulated by the application, they had passed the point where operation could possibly cure. These are not the only disastrous results of lack of X-ray knowledge. We all knew, respected and loved some of the splendid men who first worked with the X-ray; men who, unaccustomed to the new weapon of attack that they held in their hands, found it turned against them and so lost their lives. We mourn their loss, we appreciate their courage, we honor their memories. In France they have lately decorated such a man as an officer of the Legion of Honor.

As new machines and tubes have been invented and perfected, power and penetration have been greatly increased and some of the results have been marvelous. Think of some of the effects produced on certain forms of goiter, on uterine fibroids; think of the immense relief and retardation in some cases of inoperable cancer when properly applied. The prophylactic post-operative X-ray treatment is now generally given in cases like cancer of the breast and in situations that can be reached. No definite statistics can be tabulated as to its good or bad results; we can, as yet, only judge by the general consensus of opinion, and that seems to be in its favor.

What is true of the X-ray is also true of radium. At first it was hailed as a cure-all, and some good and much harm was done by its

overzealous advocates. In skilful, trained hands great advances have been made and results obtained that promise well for the future. One of the greatest benefits that can be credited to it is in the treatment of inoperable cases. Late cancer of the tongue, of the mouth, the uterus, for example, can now be referred to the expert in the hope and belief that some of them, at least, will be relieved and perhaps an occasional one cured. Lymphosarcoma responds wonderfully to its emanations and, though there are recurrences, enough remain well to justify the hope that they are permanently cured. Rodent ulcer and leukoplakia are amenable to treatment, though it is still uncertain whether the latter is not as well treated by fulguration. The question as to which cases, if there are any such, are to be treated by radium without previous operation, is a most important one and deserves most careful consideration. Are we, in the future, to give up the knife in favor of radiation in cases of epithelioma, rodent ulcer, and the like, cases that we know from experience may be cured by mechanical means. Personally, I am strongly in favor of surgical measures for several reasons; we must remember that to cure any cancer, *all the cancer cells must be killed*; in other words, we must produce by radiation an effect, a destruction of the mass, similar to that produced by an escharotic, and we all know how difficult it is to regulate the dose of either agent. We do too much or too little. Again it is a well recognized fact that one effect of radiation is to stimulate cell growth, and though the cancer may be apparently checked, inhibited for a time, it will later grow with added vigor, as the green grass grows more luxuriantly on burnt over fields. Keratosis may be cured by radium emanations without sloughing if they are properly applied, but when they are allowed to produce too pronounced an effect an ulcer is left behind that heals much more slowly than that produced by the knife or curette or cautery. When we see a burn from a "live wire" we know that it will take much longer to heal than though it were made by heat alone, and X-ray and radium burns are harder to heal than any others. Considering the success that follows surgical removal combined, if necessary, with plastic closing of the defect, or with skin grafting, I see no reason whatever for using radium for epithelial or basal cell cancer on the face, or even on the eyelids.

We may, however, say this much: if a patient absolutely refuses operation for such a lesion, send him to someone who has sufficient radium, training, conservatism, and that which is miscalled common sense. Such a man will refuse to treat such a patient if the case is

not a suitable one. Possibly, perhaps probably, in the not remote future, when the possibilities and limitations of this wonderful element are better understood, when the best methods of its application are discovered, we may treat all these cases with radio-active agents. Here and now, however, we can make the positive statement, that deep-seated cancer, especially where the lymphatic glands are involved, is not curable by radium, as at present used and understood, and if operable should never be treated by radium alone. The knife has been in the surgeon's hand for hundreds of years, and year by year he has grown more and more proficient in its use. Radium is a new instrument, in his hand but a short time; is it to be wondered at that he is still somewhat awkward in its use? "Practice makes perfect." The rapier in the hand of the clown is not as useful as a club, but in the skilled hand of the swordsman is a powerful weapon of defense and attack—may our new rapier, radium, prove such a weapon.

The one thing for the surgeon to remember is, that these new servants of ours are not yet thoroughly trained, not yet subjugated. They are mighty powers for good, and they are also mighty powers for evil; in untrained hands they are apt to do more harm than good, and, unless a man means to devote time and energy to their conscientious study, it is better for him and his patients to let them severely alone; but, should the radium expert decide that the treatment promises relief let that expert carry out that treatment. The same may be said about the toxin treatment of sarcoma—it should be in the hands of the specialist. Most of us, I suppose, have tried it ourselves in some cases but without marked success, yet many of us have seen cases treated by one who had had great experience in this line of work, where the results were simply remarkable, to say the least. Such cases give us hope, but the treatment again should be in the hands of the expert. It is easy enough to give a few drops with a subcutaneous syringe, watch the reaction and listen to the patient's story of the real suffering caused by it, but I feel that the average surgeon does not give his patient the best chance that the treatment offers, and will subject him to additional pain without compensating result.

What of the future? I confess myself an optimist. The science of medicine has progressed and will always progress. Think of the diseases that have been conquered and of those whose mortality has been greatly diminished. Cancer will always be with us, but we surely hope and expect that education, prophylaxis, early and adequate operation, careful study and experimentation, and the right em-

ployment of the comparatively new forces at our command, as well as those possibly yet undiscovered, will enable us to improve on the prognostication of today as much or more than we have improved on that of the learned Dr. Riverius. We cannot accomplish this by viewing the past with pride and the present with smug complacency. The future is the child of the present, and every breeder knows that to insure productive off-spring, productive sires and good blood are essential. The present is bringing forth good men, hard workers, sound thinkers, and keen surgeons, men who "do things," as did Dr. Hodgen before them, and, like him, they are striving to solve some of the problems that vex us today. They are the future, bred by the great minds that came before them; let us hope that, like Dr. Hodgen, they will be worthy of remembrance and that either they or other off-spring may at last solve the cancer problem.

180 Marlboro St.

THE CHOICE BETWEEN RADIUM, X-RAY, AND
THE KNIFE IN THE TREATMENT OF
UTERINE MYOMA AND
UTERINE CANCER*

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This short paper is simply a statement of my present "working rules" in the choice of treatment for the classes of patients mentioned. There is no attempt to present the facts and arguments and experiences that lie back of these conclusions; that would extend the paper far beyond the limits intended. As you know, there is a vast literature concerning these therapeutic measures. Also, new information is coming in rapidly, and conclusions change accordingly. In the meantime there are patients who must be treated for these serious conditions for, unfortunately, the diseases will not wait until everything is settled and clear in the matter. The duty of the clinician under these circumstances is to formulate plans for treatment, based upon a careful study of the present information available in his own experiences and in the experiences of others. I thought you might be interested to know my conclusions on this subject as represented in practice in our Gynecologic Service.

The subject of choice between radium, X-ray, and the knife, in the treatment of uterine myoma and uterine cancer, presents much confusion at present, and the differences of opinion expressed are too marked and radical to be simply errors of observation. There are two

important factors back of this situation. The first is the newness and incompleteness of the knowledge concerning radium and X-ray therapy. The information concerning them is coming in so rapidly that a considerable part of it is still undigested, as far as sustaining clinical practice is concerned. Some opinions are evidently based on enthusiastic hopes rather than on tested evidence. The second factor is that many of the radical pronouncements as to treatment are by workers familiar with only one or two of the measures under consideration.

Having all three measures available and wishing to give each patient what was best for the special conditions present in her case, I have for a considerable time been making a study of this particular phase of the subject, i. e., of the *choice* in the individual case. While not ready for a statistical case report I am ready to give my "working rules" of choice in these cases. In a subject which is growing so rapidly and in which so much of the knowledge is new and more or less obscure, particular care is required to be sure that the choice is based on established facts; for facts and fancies intermingle confusingly in the literature of these measures. While the choice of treatment must shift according to new evidence coming in, a certain amount of conservatism, of the critical "show me" spirit, in the physician is invaluable to the patients who depend upon him in these serious conditions.

In uterine myoma and in uterine cancer the three measures mentioned, rightly used according to present knowledge, are not antagonistic nor exclusive one of the other. Rather they are supplementary. Each has its field in which it is clearly the best treatment. The edges of the fields merge, of course, giving classes of cases in which the choice is not strongly one way or the other. The future may witness marked changes in these fields but for the present the following represents my working choice in the different classes of cases.

Uterine Myoma

Radium. Radium is the preferable form of treatment in the following classes of cases:

1. In uncomplicated small and medium sized myomata in patients in the menopause or near the end of the child-bearing period. Persistent bleeding is usually the serious symptom in these cases and this is promptly controlled by radium, which checks all bleeding, menstrual or otherwise. Nearly all properly selected cases prove amenable to this treatment. In approximately 400 reported cases, satisfactory results were secured in about 95 per cent.

In the cases of myoma apparently suitable for radium treatment, complicating carcinoma

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of the endometrium, must be excluded by curettage. This is very important. I found this unsuspected complication in two cases within the last year. Each case presented myomatous nodules of the size and type suitable for radium treatment. Following my custom at radium application, I made a preliminary curettage and sent the scrapings for routine examination. The laboratory returns showed complicating endometrial carcinoma, and this diagnosis was confirmed in each case by the findings in the removed uterus. In one case the associated carcinoma was rather extensive and in the other case it was still confined to a small area.

In young women the preservation of the childbearing function and of menstruation is desirable, and this is best accomplished by myomectomy, as mentioned later.

2. In patients with kidney, heart and other complications giving undue operative risk, radium may reasonably be tried in the somewhat larger growths, especially in those cases where X-ray treatment produces such marked nausea and ill-feeling that it is not advisable to continue it.

In these complicated cases, also, carcinoma of the endometrium should be excluded by preliminary curettage, if possible. Of course, in these seriously complicated cases, general anesthesia is to be avoided. In my experience the curettage and radium application may in most of these cases be accomplished under morphia-hyoscine analgesia. In the exceptional cases where necessary this analgesia may be supplemented by local infiltration-anesthesia of the cervix or by short ether inhalation, as preferred.

I shall not touch on the quantity of radium used, distribution of the radium, duration of application, screening and other important details of radium therapy, for I wish to limit my remarks strictly to the subject mentioned, namely, the *choice* of cases for radium treatment, for X-ray treatment and for operative treatment.

X-Ray. The larger growths in patients presenting undue operative risk are best handled by deep X-ray therapy. In most cases this will, after a time, stop the bleeding temporarily and give a chance to build up the patient for operation. If she cannot be gotten into condition for operation, continuation of the X-ray treatment may stop the bleeding permanently and diminish pressure-symptoms by shrinking the growth.

If preferred, the smaller growths also may be treated by X-ray instead of radium, with practically the same percentage of symptomatic cures. In over 600 reported cases of myoma treated by X-ray the bleeding was stopped in

approximately 95 per cent. However, the X-ray treatment has the disadvantage of extending over a long period or, if given in more massive doses in a short period, of upsetting the patient's digestive and nervous systems, in some cases to a serious extent. I have had several patients who complained bitterly of this disturbance from X-ray treatments, stating that they would prefer the danger and discomforts of operation to another such course. So I now use radium therapy in the myomata that are small enough to be suitable for it.

As a rule the X-ray treatment should be preceded by diagnostic curettage, to exclude complicating malignancy. Occasionally the circumstances of the case are such that one feels justified in taking the risk of omitting the diagnostic curettage, at least for a time. A serious coincident disease may make it advisable to avoid any upset to the patient's physical or nervous balance. I recall three cases during the past year in which this rather risky plan was followed. In one the cardiovascular condition contraindicated any upset to the patient, such as curettage, and yet the persistent bleeding was making the condition steadily worse. Under X-ray treatment the bleeding stopped for several months, enabling the patient to get into very much better condition. Later, when the bleeding started again, I promptly removed the myomatous uterus while the patient was still in fair condition. There was considerable degeneration in one of the large nodules but no malignancy either there or in the endometrium. In another patient with a large tumor, persistent bleeding and severe anemia, the cardiac breakdown was so marked that it was not expected the patient would ever rise from her bed. Under X-ray treatment the bleeding stopped, and under suitable medication and diet the anemia and cardiac condition improved, and now after several months the patient is up and about and comes to the office. So far, there has been no return of the bleeding. The third patient, in addition to a myoma which she had not noticed, had a nervous or mental disturbance that made it inadvisable even to suggest the presence of any serious trouble in the pelvis. Under X-ray treatment the bleeding associated with the uterine myoma stopped and has not returned after some months. The patient will, of course, be kept under observation. This plan, however, is a risky procedure and is to be adopted only in those very exceptional cases in which *any* upset to the patient is strongly contraindicated.

The Knife. Operative removal of the myoma is the preferable form of treatment in the following classes of cases:

1. The large growths, from the size of a grapefruit and upward, are, I think, best han-

dled by operation. It is not practicable to fix an arbitrary limit of size as other conditions have a bearing on the decision. For example, pediculated subperitoneal growths are not so favorable for radium or X-ray treatment as growths embedded in the uterine wall and hence must more often be removed by operation. Again, a single large growth is not so favorable for non-operative treatment as a myomatous uterus enlarged to the same size by a number of small nodules.

2. In young women in whom preservation of the childbearing function and of menstruation is desirable, myomectomy is the preferable form of treatment, where any serious treatment at all is necessary. In many of these cases the myomata may be removed without disturbing the functions of the uterus. However, a point to be kept in mind is that when the abdomen is opened it *may* be found necessary to sacrifice the uterus in order to remove the tumors completely. Hence myomectomy should be advised only after careful consideration of all the features of the case. If the growths are not of a size and location necessarily interfering with pregnancy or labor, it would be well to try first to check the bleeding by other means, such as curettage and internal medication. If these measures fail it may be advisable in exceptional cases to employ light doses of radium or X-ray, with the idea of giving just enough to control abnormal bleeding but not enough to affect ovarian or uterine function seriously. But in spite of advances made in the regulation of dosage and the enthusiastic assumptions of some authorities, I regard this as hazardous to the preservation of function and hence employ these measures for this purpose with very decided caution. If the X-ray is used, it is preferable to apply it to one side only, so that one ovary will remain unaffected.

3. In complicated cases the complications often make operation advisable in a growth which if uncomplicated would be suitable for radium or X-ray treatment. The complication may be inflammation of some adjacent structure, for example, appendicitis or salpingitis. Such associated trouble is found in a considerable proportion of the cases of myoma. The complication may be inflammation or degeneration of the myoma itself. Degeneration is common in the larger growths, especially in the subperitoneal masses. A myoma that takes on growth after the menopause is probably undergoing a degenerative change of some kind and should be promptly removed if the patient is a safe operative risk.

Uterine Cancer

Radium. In the advanced inoperable cases and in the borderline cases, radium is our

most effective remedy. The palliative effect is nothing short of wonderful. The enlarged carcinomatous cervix with its bleeding papillary masses melts away as by magic, and the cavity closes, largely or entirely by healthy granulation. However, this beneficent effect is limited in extent and diminishes rapidly with the distance from the radium. The cancer cells are killed in the area in which all tissue is devitalized and also in the next zone in which the effect is sufficient to kill the cancer cells but not the tissue cells. It is from this latter zone that the cancer-free granulations come which lead to healing of the cavity. Beyond this is a third zone in which the cancer cells are partially devitalized, and eventually are killed through connective tissue growth and pressure starvation. Beyond this is a fourth zone in which the cancer cells are not harmed—in fact, may be stimulated to more rapid growth.

The problem of radium treatment in carcinoma of the cervix uteri is the problem of widening the second zone so that it extends to the pelvic wall. This is a difficult problem and is still unsolved, though progress is being made. By the use of large doses of radium the second zone may be pushed far out toward the pelvic wall, but the first zone, the zone of complete devitalization, is also widened with resulting serious sloughing affecting the bladder, ureters, and rectum. By heavy screening, the first zone may be limited and the second zone greatly widened, theoretically even to the pelvic wall. But there then appears another harmful effect quite as serious if not more so than sloughing and fistula formation, and that other effect is extensive connective tissue contraction, or fibrosis, which develops gradually in certain cases after radium treatment. This leads to gradual constriction of nerves with persistent pain and gradual stenosis of the rectum, ending in occlusion. Several cases have been reported in which colostomy was required. One such case came under my observation. I did not treat the patient but saw her in consultation. It was a moderately advanced carcinoma of the cervix, a borderline case, in which after radium treatment gradual contraction of the pelvic connective tissue came on. Eventually colostomy was done. But the patient's suffering continued and finally excision of the rectum and the mass of scar tissue in which it was imbedded was carried out.

So radium is two-edged—it cuts both ways and may do much harm as well as much good. Consequently its use requires decided caution. It is hoped that in time the curative effects of radium may be extended to the limits of the pelvis, but that ideal has not yet been attained.

In some extensive cases the cancer is completely eliminated by the radium; however, this result is attained in only a small proportion of the cases. It may be hoped for but it is so infrequent in the classes of cases under consideration that the remedy must be presented to the patient as essentially a palliative measure, with only a possibility of cure. As mentioned later, it is advisable to employ also deep X-ray therapy, to affect the cancer cells lying beyond the effective reach of the radium. But even this combination must still be classed generally as palliative rather than curative.

X-Ray. In carcinoma of the uterus the function of X-ray treatment is to devitalize the outlying cancer cells, *i. e.*, the metastatic growths and the outer portions of the main growth which may be beyond effective reach of the radium applied within. In other words, deep X-ray therapy in cancer of the uterus is supplementary to radium and to operation. The question of metastasis is always present in these cases of cancer. Even in the earliest operable cases we cannot be certain there are no metastases. Hence the plan of treatment should include all reasonable measures for devitalizing outlying cancer cells. Here lies the field of X-ray treatment in carcinoma of the uterus. Recent advances in deep X-ray therapy have increased very much the retarding effects in these deep growths and encourage the hope that curative effects may ultimately be attained.

The Knife. In clearly operable cases, that is, in those early cases apparently still confined to the uterus, I feel that immediate removal of the uterus and adjacent tissue likely to be involved is the safest plan. Theoretically we should be able to cure these patients with radium with as great certainty and with far less danger than with the knife. But so far the actual results in cancer of the uterus do not justify displacement of the knife by radium in these early cases.

In something over one thousand reported cases of carcinoma of the cervix treated by radium five years previous to the reports, about 20 per cent. were cured—approximately the same percentage as by radical operation. This large series of reported cases was collected by Dr. F. J. Taussig in an excellent review. When the cases were divided into classes it was found that more of the advanced and borderline cases were cured by radium than by operation, while of the early operable cases the percentage of cures by radium (31 per cent.) fell decidedly below that by operation (40 to 45 per cent.). It is hoped that advance in the technique of radium treatment will eventually place it far ahead of operation in percentage of cures even

in these early cases, but that result has not yet been attained.

There is still uncertainty as to how far radium will be effective in a particular case. It gives wonderful results in some cases but in others it stops short of expected effectiveness. And the most disconcerting thing about it is, that we do not know why it fails where apparently it ought to succeed and succeeds where apparently it should fail. Outside of the technical details of its application, its effect is evidently modified by the type of cancer cell present, by the type of tissue cell in the area, by the condition of the cells in the particular case, and by the resistance or defensive power, both local and general, of that individual. These important items vary with each patient and we know so little about them, even in the normal or typical individual, that it is not strange that there should be certain unexplained results or lack of results in clinical radium work. It is this uncertainty that makes operation the safer plan in the clearly operable cases. We know what can be done with the knife in the individual case. We do not know the extent of effectiveness of radium in an individual case until it is tried in that case. And in the time required for trial by radium the chance of cure by operation slips away.

In order to give the patient the best chance of cure in these early cases it is advisable to employ both radium and operation. First, give a heavy dose of radium, the same as though depending on it to effect the cure. Then within a week or ten days do the radical operation. The operation should be carried out within a short time after the radium treatment because later the connective tissue changes from radium become so marked as to increase very decidedly the difficulties and hazard of the operation.

This plan of treatment for the early case is based on the assumption that the patient is a good operative risk. If the patient has some serious complication making her a poor operative risk, then her best chance of survival cancer-free may be through radium without operation. The decision for or against operation, and of the extent of operation, turns on a balancing of the hazards pro and con—the hazard of operation, the chance of failure of radium to kill the cancer cells in that individual, and the chance of metastasis near and far. On account of the latter danger, it is advisable to supplement the other treatment by deep X-ray therapy.

Another point, and one which seems at times to be overlooked, is that these powerful remedies require experienced judgment and skill in their application. They are as potent as the knife and in inexperienced hands may produce as disastrous results—either in the

form of injury to important organs or as failure to obtain results that could have been obtained by a really efficient application.

To recapitulate for cancer of the uterus: In clearly operable cases, give a heavy dose of radium, do the radical operation within a few days, and subsequently give deep X-ray treatments.

In inoperable cases and in borderline cases, give a heavy dose of radium and follow with deep X-ray therapy.

Metropolitan Bldg.

THE TREATMENT OF UTERINE CANCER BY THE GENERAL PRACTITIONER

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The great majority of patients suffering from cancer of the uterus first consult the general practitioner. This fact makes it essential for him to be thoroughly familiar with the symptoms of the disease so that he may diagnose it and institute the appropriate treatment without delay. It is, therefore, necessary ever to bear in mind that the very first sign of uterine cancer is the occurrence of irregular bleeding from the vagina. Such bleeding need not be copious in the beginning. In fact, profuse hemorrhages are often preceded for weeks by a discharge which is merely tinged with blood and free from offensive odor. There is, among the laity, a widespread belief that the "change of life" is often ushered in by profuse and prolonged hemorrhages. It must be the duty of every physician to protest strenuously against this erroneous idea, to insist that the *normal* climacterium is characterized by a gradual fading away of the menstruation, and to preach far and wide that irregular bleeding at or near the menopause is *always* pathologic and very often suspicious of malignancy. Under no circumstances should the physician be satisfied, in such cases, with prescribing douches or styptic remedies without having made a bimanual and speculum examination. Nor should the practitioner permit himself to be deceived when his patient tells him that "the period had come back" six or twelve months after the menopause. We know now that the menstruation never returns after the climacterium has once been firmly established for several months, and that the appearance of blood in such cases almost always spells cancer.

The educational propaganda which is being carried out tirelessly in all civilized countries has taught the laity that bleeding calls for an examination. But, unfortunately, the number

of women who have been reached and impressed by this advanced teaching is pitifully small compared to those who still feel, as they did in the middle ages, that menstruation or any other kind of bleeding from the vagina renders them "unclean," and who for that reason desire to have the examination postponed until after the bleeding ceases. The enlightened physician will not give in to this demand. He will insist upon *immediate* examination and to this end put forth all the weight of his authority; and if every persuasion fails, plain reference to the possibility of a malignant process is permissible.

Every text-book on gynecology offers detailed description of the physical signs of uterine cancer which may be found upon examination, and in most instances the physician will have no difficulty in arriving at the correct diagnosis. If, however, he should be in doubt, he must be careful not to lose precious time by waiting until the progress of the disease has verified his suspicion, or by attempting to treat the lesion with caustics or other harmful or useless agents. If, on examining a bleeding patient, he finds the cervix free from any suspicious affection, he should think of the possibility of cancer of the body of the uterus, even though that organ may not present any change in shape or size. In all such doubtful cases, the practitioner has recourse to two expedients. He may either send his patient to a specialist for examination and diagnosis, or he may make use of exploratory excision or curettage. An exploratory excision of the cervix should be made in the form of a wedge which includes, if possible, the border between the healthy and diseased tissue. This little operation must be carried out under all aseptic precautions and the small wound must be closed with a stitch or two to avoid unnecessary bleeding. For diagnostic curettages, the *entire* uterus should be scraped out thoroughly, and all material should be sent to the nearest pathologic laboratory. It is perhaps not superfluous to add, that these specimens should be in a conserving fluid, such as a weak formalin solution or diluted alcohol, and should be accompanied by a brief description of the case.

If all women with uterine cancer would consult a physician at a time when the diagnosis could be established only by means of an exploratory excision or curettage, the outlook for such patients would be more roseate. This, unfortunately, is not the case. It takes a long time to break down the barriers of ignorance and indifference, as has been the experience in other attempts at popularizing medical advances; and the great mass of the laity still cherishes the wrong belief that a disease needs no energetic treatment as long as it does not

cause pain. The physician who takes his duties towards mankind seriously, can only repeat and reiterate that pain is never present in the early stages of uterine cancer, and when pain actually does occur, that it signifies a progress of the disease beyond a reasonable expectation of permanent cure.

These, then, must be the guiding thoughts of the practitioner: that uterine cancer begins with bleeding which is often insidious and, without examination, cannot be distinguished from bleeding due to other less harmful causes; that the right diagnosis should be made at the earliest possible moment, and that uterine cancer can be cured permanently if it be diagnosed in its earlier stages; that by teaching the laity, the physician may eventually gain their cooperation and thereby save an increasing number of patients from inevitable death.

This leads us to the question of treatment. How can the general practitioner treat his cancer patients?

If the case is operable, that is, if the cancer is still confined strictly to its point of origin upon the uterus, the practitioner will, of course, refer such a patient at once to a competent gynecologist. The practitioner, however, must be aware that even in such an early case *only a very radical operation* will be of permanent benefit and that this truly radical operation is the most difficult operation in gynecological surgery requiring as it does, great experience and familiarity with the intricate technic.

If the cancer is somewhat advanced or if it has altogether reached the inoperable stage, radium is the very best treatment at the present time. This, again, requires the services of a specialist. The efficacy of radium is established beyond a doubt. The results which I have observed in private practice and in my service at the Barnard Free Skin and Cancer Hospital are truly astonishing and coincide closely with those reported in literature. It goes without saying that success depends on a sufficiently large amount of radium and an intimate acquaintance with all the problems of the radium therapy.

But if radium is not available, the physician will be called upon to treat the patient himself. Of the large number of methods of treatment which have been proposed in the past, but very few have stood the test of time, and the unbounded enthusiasm with which each new remedy was recommended by its originator and received by the profession, has passed into oblivion. It merely showed how much the general practitioner was in need of a means whereby he could, with any degree of success, combat the three cardinal symptoms of inoperable cancer of the uterus: hemorrhage, discharge, and foul odor. Of the chemical agents thus

exploited, one must be mentioned in order that it may be warned against, and that is chloride of zinc. The cauterization produced by this drug cannot be measured as to the intensity of its action, and many are the cases where this caustic has penetrated through the intervening cancerous tissues into healthy structures and caused irremediable fistulae and even peritonitis. Of the other methods in vogue, vaginal douches can be dismissed with a word. They are absolutely useless, no matter what solution of antiseptics, astringents, or deodorants they contain. The burning out of the cancerous masses with a cautery has much more to recommend it. But after all, this procedure is a minor operation which nevertheless requires some surgical skill and hospital facilities; and, moreover, in order to be really efficacious, it should be repeated at regular intervals for months.

In view, then, of the fact that most of the means of treating the cases under discussion are either useless or not within the reach of the general practitioner, I feel it my duty to call the attention of the profession to a method of treatment which I originated about fifteen years ago and which is second only to radium in the suppression of the awful triad of symptoms of inoperable cancer of the uterus. I have described my method in several publications.¹ A number of papers on the subject have been written by others² and most of the text-books on gynecology in America and England recommend this treatment which, in short, consists of the application of acetone to the cancerous area about the cervix.

The technic is very briefly this:

1. The cancerous masses occupying the cervix are scraped or scooped out with a curette or, better still, with a very large, sharp spoon. This may require a few whiffs of ether or chloroform, but in many cases a preliminary injection of morphine renders this short initial step painless.

2. Do not lose time with attempts at checking the bleeding which is usually abundant, but raise the foot end of the examining or operating table and insert into the vagina a well-lubricated Ferguson or other *tubular* speculum.

3. Pour into this speculum a tablespoonful of pure acetone, which will check the bleeding immediately. Lower the speculum after about ten minutes and permit the acetone and clotted blood to run out, and fill the speculum once more with pure acetone.

4. The speculum is now held in place for fifteen or twenty minutes, usually by the patient

¹Journal Amer. Med. Assn., 1907, Muenchen. med. Wochenschr., December, 1907, Amer. Journ. Obstet., 1909, Zentralblatt f. Gynaekologie, 1911.

²Maier, Therap. Gaz., 1908), Tovey (Med. Rec., 1909), Hinchey (J. Mo. State Med. Assn., 1910), Wobus (ibid., 1918).

herself, after which time the table is lowered so that the fluid will run out of the speculum. The latter is now thoroughly washed out with cotton pledges soaked in water, and then withdrawn. No packing is left in the vagina.

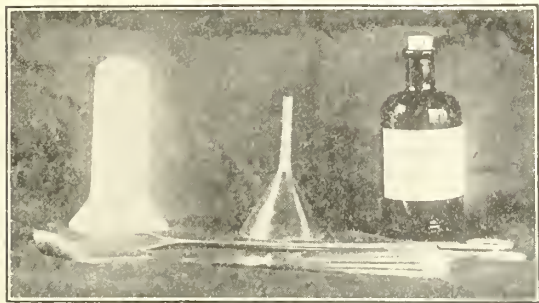


Fig. 1.

The accompanying photograph shows how simple the outfit is which is needed for the treatment. There is absolutely no pain connected with the procedure *provided* that the acetone does not touch the vulva. Even a single drop of acetone upon the mucosa of the vulva would cause an intense burning which, however, can be relieved at once by washing it off with water. It is for this reason that a tubular and not a bi-valve speculum must be inserted and that the amount of acetone used must not be so large as to run out and over the vulva.

The treatment as outlined above is repeated every two days for at least three weeks, except that the curettage is omitted. Later the intervals between treatments are lengthened to three or four days, and as the condition responds to the applications, treatments are given only as the case requires.

The beneficial effect of the treatment is usually very prompt. The hemorrhages are, as a rule, the first to disappear. The discharge becomes more watery and soon loses its offensive odor. The general condition of the patient improves fairly rapidly as appetite and strength return, and the severe pain which had interfered with sleep, usually decreases to such an extent that very small doses of opiates or even salicylates suffice. Gradually the crater in the vagina shrinks perceptibly and the patient regains, for a time at least, the feeling of good health.

I have been able to prolong life in this manner with a certain degree of comfort in hundreds of cases. I did not expect ever to cure an inoperable patient, nor can such a result be hoped for from the nature of the malady. Yet Dr. Palmer Findley, of Omaha, tells me that he has under his observation two women who have remained clinically cured five years after the first acetone treatment.

Lest there be a misunderstanding, let me repeat: the *best* treatment of inoperable cancer of the uterus is, at present, radium. But to the general practitioner who cannot, for various reasons, give his patients the advantages of this remarkable agent, there is offered in the above described treatment a simple method by means of which he may be able to check temporarily the ravages of this dreadful disease and to ease the deplorable lot of the unfortunate sufferers.

Metropolitan Bldg.

MALIGNANT DISEASE OF BONE*

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The story of malignant disease of the bone is too long to be told in the short time this Society allows to one speaker. On this account I shall speak only of one variety of bone malignancy, the type that shows no bone expansion. This type never enlarges a bone except as osteomyelitis follows in its wake. No bone tumor can be seen or felt upon examination. It is on this account that they are occasionally overlooked or the pain of their course is wrongly attributed. This variety includes metastatic carcinoma of bone and malignant myeloma. A pain unexplained by rational examination is the chief manifestation of these patients. I shall not present a scientific case report but tell the story of my own experience with these growths and the difficulties that have attended their identification.

Malignant myelomas are classed as "hylic" tumors by pathologists, i. e., pulpy tumors. They are soft growths in the marrow of bone that produce great pain, emaciation and albuminuria. The albuminuria is due to an albumose—Bence-Jones albumose so-called—that is found also in a few old syphilitic and tubercular bone cases.

The pain of bone cancer and of myeloma is much alike. There is no tumor or other objective sign to guide one. The pain is so like a chronic rheumatism that the best physician is misled. This is true of malignant myeloma and it is true of carcinoma and I am led to write this short paper on account of the pathetic records of three patients. One a soldier, victim of a myeloma; one a woman with cancer of bone with no outward sign, or sign that could be found by physical examination, and one a metastasis from a mammary cancer amputated a few weeks before the crumbling bone gave a pathological fracture of the femur.

*Read at the 64th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 24-26, 1921.

She fell across the floor of her bedroom the day she came home from the hospital where her breast cancer had been removed but three weeks previously.

Case 1. Malignant Myeloma. A soldier at a training camp complained always of pain. Pain in the spine, in the shoulders, in the head, in the legs. His Company surgeon could find no reason for his complaint. His pulse was normal, so was his temperature, so was his respiration. No joint was swollen. There was no tumor. All signs as shown by physical examination were negative; yet the soldier complained. His legs hurt him, his head hurt him, and above all his neck hurt him.

The draft board had sent him in, so his sergeant did his best to train him but the soldier's bitter complaints at last landed him in a base hospital in Texas where a well posted young surgeon sent him to an x-ray laboratory. Then came the explanation of the charges of malingering because he had pain with no swelling and no fever and no changes in his pulse rate. Areas of absorption appeared in the arm bones, the leg bones and the small bones. Some slip in laboratory technique had given him a "2 plus positive" Wassermann reaction although many other Wassermann tests had been frankly negative. Some army Medical higher up, who knew syphilis better than myeloma, became suspicious of bone syphilis. He was passed over to the War Risk Insurance Bureau, and by them to the Public Service, and came under my care for a diagnosis.

X-ray pictures were taken and after some time and trouble, absorption areas were demonstrated in all parts of the body. This led to a diagnosis of malignant myeloma because this disease shows such bone lesions, without expansion, with rarefaction or absorption appearing without reason or symmetry, and resembling bone cancer in its grosser aspects. Malignant myeloma is also called "cancer albuminose" because there always appears the Bence-Jones bodies in the urine of the patient. This was found in my patient and a diagnosis against syphilis and favorable to malignant disease of the bone was made. This was confirmed by laboratory findings of negative Wassermann and demonstration of the Bence-Jones protein body in the patient's urine. He was given full disability and when last heard from was having X-ray treatment for his malignant myeloma.

Case 2.—Bone Carcinoma. I saw this patient in 1917 with a frank attack of rheumatic fever. The wrist and one elbow were involved. Soon after one ankle became swollen. I referred her to a neighbor physician.

Under alkalin treatment at his hands she improved and a short course of salicylate of sodium ended the attack. The focus of infection was in the patient's teeth and tonsils. She had several bad teeth removed; her tonsils she decided to retain. So in December, 1920, her family were not surprised to find her sick again with rheumatism, but it did not appear to be of the same kind or type. There was no swelling; no joints involved; only pain, mostly in the right shoulder and left hip. The diagnosis of rheumatism was made by the lady herself, confirmed by the husband and approved by the trained nurse who was installed before the medical attendant was called. Rheumatism, of course, marked, signed, sealed and delivered. All treatment was unavailing, as may be seen when I say that two osteopaths were employed and discharged as failures. They hurt, and did not benefit her. Then two well-known practicing physicians of Kansas City followed with salicylates, vaccines and hydrotherapy, all without relief. Then after four months, an inquisitive doctor took her to St. Mary's Hospital and by laboratory methods

arrived at a true diagnosis. X-ray examination found carcinoma in about all important bones of her body. The right shoulder was broken—a pathological fracture. The left hip was broken also. She died later and Dr. Wall of Bell Memorial found carcinoma of the right adrenal gland, metastases to the right lobe of the liver and fixed the absorption bone lesions as carcinoma of bone.

Case 3.—This is a type the like of which may be found in any large hospital in America several times each year. An old woman came with a cancer of the breast. No one studied her case—she had a cancer of the breast. The doctor who saw it first told her it should be removed. She at once went to the hospital and the surgeon approved the diagnosis and removed the growth and breast and cleared the lymph nodes adjacent. She complained of her back volubly and often, while in bed recovering from the cancer, and Dr. Knappenberger undertook to see why. His X-ray studies showed carcinoma of many bones, vertebrae most of all. She recovered from her breast operation and went home. As she walked from the ambulance her hip gave way—a pathological fracture—and the ambulance which took her away from the hospital convalescent from the breast operation brought her back a fracture patient. She died of metastasis in St. Mary's Hospital.

These three cases suffered much pain and while early diagnosis and treatment might not have cured them, for in the present state of our knowledge carcinoma of the bone is not often cured, yet it might have done so and a fraction of the money for massage, medicine and doctor's bills spent at random on any one of these cases would have kept the patients in comfort for the remainder of their lives. Early and vigorous treatment by radium and X-ray does benefit and is even said occasionally to cure them, and it is about the only thing that does either cure or give pain relief.

Conclusions.—(1) Any case of continued pain should be studied in a hospital laboratory.

(2) Rheumatism is only a diagnosis when rationally studied and proven. Pain is not rheumatism.

(3) Cancer of the bone is a frequent cause and malignant myeloma an occasional cause of so-called rheumatic pain long continued.

(4) X-ray is our only means of recognizing these growths and the chemical laboratory our best means of differentiating them.

(5) All long-continued pain should be X-rayed.

1305 Rialto Building.

RADICULITIS TYPE OF EPIDEMIC ENCEPHALITIS—REPORT OF CASE*

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ST. LOUIS

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Epidemic, also called lethargic, encephalitis, in addition to producing a general toxic state

*Read before the St. Louis Medical Society, October 11, 1921.

affecting more or less the whole body, may likewise cause characteristic focal lesions in the nerve tissues. These lesions consist of perivascular infiltrative inflammation, at times hemorrhagic. They are most frequently found in the brain stem and in the basal ganglions but can involve any portion of the central or peripheral nervous system. In its ability to work widespread harm throughout the confines of the nervous system, epidemic encephalitis has been aptly compared with syphilis.

The prominent symptoms of the most prevalent types of epidemic encephalitis need but passing mention. They are by this time well known not only to the medical profession but to a large percentage of the laity as well. Such symptoms are lethargy, fever, cranial nerve palsy. But there are many other symptoms, perhaps not so well known, which may occur either in conjunction with the more familiar ones or in combination with one another. Thus a great variety of symptom complexes are produced. To name and classify these symptom complexes has been the endeavor of many competent clinicians. As yet no all-comprehensive, satisfactory classification has been brought forward. Seemingly new types are still from time to time described. Order will eventually come out of chaos, when more extensive post-mortem investigations shall have checked up the clinical phenomena with the anatomical findings. It is well, however, to know the names of the various types of epidemic encephalitis based on symptomatology, for the name of each type epitomizes a group of symptoms frequently met with in this protean disease, and familiarity with these names will greatly aid us to recognize the disease in its many different forms. L. Archambault¹ proposes the following types: lethargic, cataleptic, polioencephalitic, anterior and posterior myelitis, Parkinsonian, meningoradicular, acute psychotic, epileptomaniacal, meningitic, polyneuritic, cerebellar, hemiplegic, diplegic, and monoplegic. The list seems long but it is by no means exhaustive. The names are self-explanatory and each one points to the involvement of a particular area in the nervous system. Pure forms are rare. Several types are frequently combined, one form usually predominating. Calling attention to a type not previously described, R. C. Hamill² reports several cases of epidemic encephalitis showing rhythmic movements of the muscles of the neck and shoulder girdle, bearing a definite ratio to the respiratory rhythm, which he attributes to a probable lesion in the medulla oblongata. He has not given a particular name to this type. I. H. Pardee³ relates the histories of eight cases of what he terms the acute descending radicular type of epidemic encephalitis with lancinating pains, paresthesia, hyper-

esthesia, and spasmodic twitchings. The symptoms involved consecutively the muscles of the neck, of the arms, of the body, and of the lower extremities. It is to this type of descending radiculitis that the case I wish to report this evening belongs.

W. F., male, aged 46, born in New Jersey, admitted to St. Mary's Infirmary December 31, 1920. Present illness began a week ago with neuralgic pains in the left side of the face. This was followed by excruciating pains in and irregular twitching of the muscles of the left arm. After two days the arm symptoms disappeared and there came pain in the left half of the abdominal wall together with painful, spasmodic, intermittent contractions of the muscles of that region. These contractions occurred about 40 a minute. The time interval between the contractions varied slightly. The patient had no control over them. Sleep did not stop them. It was to get relief from these painful contractions from which he had suffered for five days that the patient entered the hospital. Up to that time he had not stayed in bed, nor had he any fever so far as he was aware. On admission his temperature was 98.4°, pulse 100. That evening the temperature was 101°, pulse 120. Next day the temperature rose to 101.4°. After that there was gradual irregular decline of the temperature and on the fifteenth day after admission of the patient to the hospital, it touched normal. Thereafter it never again exceeded 99°. On January 2, the third day of the patient's stay in the hospital, he developed a restless muttering delirium. Moreover, he was in a constant stupor or lethargy. However, he could be easily aroused and then would answer questions intelligently. The cramp-like twitchings of the muscles of the left half of the abdominal wall continued day and night.

Of the family and past histories of the patient nothing of importance was elicited except that he as of temperate habits, denied having had any venereal diseases except gonorrheal infection 27 years previously.

Physical examination shows patient to be of a delicate build and rather poorly nourished. Face dusky red. Neck not rigid. No adenopathy. Lungs emphysematous. Heart and abdominal organs negative. Knee jerks diminished. No alteration of sensations. No Kernig. No pathological toe reflexes. Right eye has been eviscerated on account of traumatism many years ago. Left pupil reacts well to light. No ocular palsies at this time. Tongue shows fibrillary twitching. Blood examination: Wassermann negative. Red cells, 4,100,000. Whites, 11,000, of which 80 per cent. were polynuclears. Spinal fluid flowed under normal pressure. It was mixed with blood (probably accidental) and on that account no further examinations of it were undertaken. (There is no uniformity in the spinal fluid findings in epidemic encephalitis. Often it is normal. At times it shows increased pressure, slight pleocytosis, mononuclears predominating and a positive globulin reaction.) The urine contained a moderate amount of albumen with many hyaline and granular casts.

The diagnosis of epidemic encephalitis was made. Dr. F. M. Barnes, Jr., who was called to see the case in consultation, confirmed the diagnosis of encephalitis and ascribed the painful intermittent contractions of the abdominal muscles to implication of the posterior and anterior spinal roots of the thoracic region.

January 6, 1921, patient worse. Besides the former symptoms he now has occasional painful twitchings of the muscles of the right side of the abdomen and of the lower extremities. A few days later there was considerable pain in the left thigh. After this

the severity of the symptoms varied from day to day, but on the whole improved. On March 1, two months after admission to hospital, patient was able to sit up out of bed part of the day. As soon as he would lie down, however, he would lapse into a light stupor accompanied by a muttering delirium. The left-sided painful intermittent contractions of the abdominal muscles continued. A careful neurological examination now disclosed a sluggish pupil, mask-like expression of the face, increase of the knee jerk, slight inco-ordination of the upper extremities but no muscular rigidity of the extremities. May 16, patient left hospital with all the symptoms relieved, excepting the twitching of the abdominal muscles on the left side, which, however, is less pronounced. July 1 the patient returned to hospital to report that the muscular twitchings now too have disappeared and that, aside from a slight general weakness, he feels perfectly well.

I believe that in this case, the clinical history of which I have just related, the pathological process implicated not only areas in the brain but also the spinal roots and possibly some of the centers in the anterior cornua of the spinal cord. The "neuralgic" pains in the face were due to involvement of the cranial nerves. The severe pains in the neck, the arms, the body, and lastly of the lower limbs, were due to descending radiculitis, that is inflammation of the posterior spinal roots beginning in the cervical and ending in the lumbar region of the spinal cord. The spasmodic, cramp-like contractions which affected especially the muscles of the left half of the abdominal wall and to a slight degree the muscles of the right side of the abdomen and of the extremities, were due to irritation of the anterior spinal roots with possible implication of the cells of the anterior cornua. Inasmuch as the patient made a complete recovery we may infer that the disease process was not severe enough to cause destruction of the involved structures. Otherwise there would have resulted a permanent paralysis of the muscles. In regard to treatment I have nothing new to offer except hyoscin hydrobromate, which in 1/100 gr. doses proved very efficient in alleviating the painful muscular contractions and quieting somewhat the delirium.

I have classified this case as belonging to the radiculitis type of epidemic encephalitis because, although it showed distinct brain symptoms, its radicular or root symptoms were so predominant, antedating all other clinical phenomena by several days and outlasting them by many weeks. Spinal cases which show trifling or no cephalic symptoms offer greater diagnostic difficulties. In fact, it may not be possible to diagnose them at all, unless other well-marked cases of encephalitis occur simultaneously with them. The same remark applies with even greater emphasis to the so-called abortive or rudimentary cases presenting no localizing lesions. They no doubt exist

in epidemic encephalitis as they do in anterior poliomyelitis but are usually overlooked.

Of course, we must expect a certain degree of diagnostic uncertainty in respect to a disease as long as the microorganism which causes it is unknown. Research work in this direction has thus far not been very productive. Flexner, however, asserts that one need entertain no doubt of the infectious and communicable nature of epidemic encephalitis and that there are ample reasons for suspecting the nasopharyngeal secretion of harboring the microbic agent. We shall be in a better position to trace the communication of the disease from patient to patient when, on account of better diagnostic methods, we are able to take into our calculations the abortive cases which are usually ambulatory and whose power to infect others is thereby much increased.

In view of these facts, the importance from a public health point of view of early correct diagnosis at once becomes apparent. The general practitioner first sees most of the cases. On him, therefore, must rest the grave responsibility of diagnosis. He cannot shoulder this responsibility successfully unless he is familiar with all the various disguises which this truly polymorphous disease may assume. It was primarily to stimulate interest in this regard that the writing of this paper was undertaken.

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REFERENCES.

1. Archives of Neurology and Psychiatry, Nov., 1920.
- 2, 3. Archives of Neurology and Psychiatry, July, 1920.

ENCEPHALITIS LETHARGICA

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The reappearance of encephalitis lethargica in epidemic form, after a quiescent period of a quarter of a century, was first reported by Von Economo of Vienna in the winter of 1916-17, and shortly afterward by Netter of Paris. These reports, together with the frequent observation of a malady heretofore practically unknown to all but the oldest living members of the medical profession, have stimulated observation and investigation of this disease throughout the medical world. The literature gives but little help to those who would learn of the disease by a study of other epidemics. We learn that the disease occurred in epidemic form as early as 1712 at Tübingen and that other epidemics have occurred—the last previous one having followed on the heels of the great pandemic of influenza of 1890-91. In the epidemic of the last decade of

the nineteenth century the disease was given the name "Nona" and was particularly prevalent in northern Italy. The rather scanty literature dealing with this outbreak indicates that typical cases of that time differed in minor features from those occurring in our present epidemic—notably in that ocular palsies were less common, but the disease has followed the same general type in the two epidemics.

The symptomatology of the malady directs the attention of the pathologist to the brain and meninges. Here the gross changes are not striking and are often so inconspicuous as to lead to the conclusion that there is no lesion present. In well-marked typical cases the following changes are found:

(1) General engorgement of the cranial vessels.

(2) Perivascular infiltration with round cells—most marked in the mesencephalon, particularly in the caudate and lenticular nuclei, in the optic thalami and about the sylvian aqueduct, and in the region of the basal ganglia.

(3) Miliary hemorrhages in the above-mentioned areas.

(4) In some cases patchy meningitis is found—usually in the leptomeninges at the bottom of the sulci about the base of the brain.

The perivascular infiltration and hemorrhages are probably to be found also in other portions of the body, but being insufficient to produce conspicuous symptoms in other areas they remain unnoticed.

The blood shows a slight or moderate leucocytosis in the early stages of the disease. This increase occurs chiefly in the polymorphonuclear cells. In late stages of the encephalitis the leucocyte count may be normal. Earlier reports, especially those of the French writers, indicated that the spinal fluid is normal in encephalitis lethargica. This has been disproved and the error may be attributed to the great shortage of medical workers during the stress of war and to the normal appearance of the gross specimen of spinal fluid.

The pressure in the spinal canal is usually increased and the fluid when withdrawn is clear. Some writers have reported slightly cloudy or bloody spinal fluid. The Nonne and Noguchi tests usually give positive evidence of globulin, while the curve of the gold chloride test is freakish and uncertain, like that of anterior poliomyelitis. Moderate pleocytosis is the rule—usually from ten to one hundred cells per cubic millimeter. These cells are chiefly of the mononuclear type.

Blood cultures at all stages of the disease have failed to obtain an organism which might be the etiological factor of the disease. The urine occasionally contains albumen and casts but this is not striking and is only a feature

of the general toxemia. The clinical picture in encephalitis lethargica varies widely in different cases as is to be expected when we recall the numerous miliary lesions in such a situation as the region of the basal ganglia. Many and varied classifications of cases have appeared recently in the journals—classifications depending on symptoms which vary with the area most extensively involved rather than upon any variation in the nature of the lesion itself. Hence no hard and fast system of classification can be made as in such event many of the cases fall into several different classes at the same time or into different classes in succession.

The disease is often preceded by influenza, less often by tonsillitis, measles, mumps or other acute infection. During the period of convalescence, or shortly after recovery from the primary disease, the patient may be attacked by encephalitis lethargica. But there are many cases in which no history of other acute disease immediately preceding the onset of the encephalitis is to be obtained, the encephalitis apparently occurring as a primary rather than a secondary illness. Prodromata may be absent, the attack occurring suddenly with fever, chilliness, headache, and other features of an acute infection. Most cases, however, present some prodromata such as sleeplessness, vertigo, blurred vision, loss of appetite, and aching pains. Diplopia is a frequent early symptom.

The onset is characterized by fever, malaise, anorexia, and headache. Some writers have described cases which were free from fever throughout the period of observation, but it is likely that in these cases the fever had subsided before the patient came under observation. Often there is delirium or mania in the first few days of the disease and the patient may require restraint. Symptoms of meningeal irritation are quite frequent and the physician often suspects tuberculous or even epidemic meningitis. When a characteristic case has reached its full development, which occasionally takes place in a few days, there is marked lethargy, somnolence and asthenia. The patient can be aroused, but, left alone, immediately becomes stuporous or may lie in a low muttering delirium. The speech often is slow and hesitating or may be scanning. The face is mask-like, a symptom of seventh nerve involvement. Often there is marked muscular rigidity. Fever may persist after the lethargic state has developed. It is usually moderate—hyperpyrexia being quite rare except as a terminal event. The fever, even in a characteristic case, may be of only very short duration. Cranial nerve palsies are so common as to be seen at some stage in almost every case. These palsies are due to involvement of the basal

ganglia in the pathological process. They appear quite irregularly and a palsy may disappear only to reappear the next day. The nerves usually affected, in the order of their frequency of involvement, are the third, fourth, sixth, seventh, and ninth. Third nerve involvement, giving rise to strabismus, diplopia, and ptosis of the upper eyelid, is a strikingly frequent and conspicuous feature. Tenth nerve involvement is fortunately very rare. It is of very serious import.

A coarse intention tremor, not altogether unlike that of paralysis agitans, is often seen. Loss of co-ordination is not infrequent and may be general or local in its distribution. Sensory paralysis is very exceptional.

Many variations from the typical clinical picture are seen, and some authors have reported cases which they described as "encephalitis sine lethargica." Within the past year the writer has seen a few cases of persistent dizziness following mild infections. Some of these cases gave a history of fleeting double vision and it is quite probable that they were mild and abortive cases of encephalitis lethargica.

The duration of the disease, both as to its general and its local manifestations, is very variable and uncertain. The shortest duration reported in a fatal case is two days. Many cases last for weeks while a few go on for months. Cases which do not die of the disease usually recover completely but the palsies may persist for a long time. Early reports concerning lethargic encephalitis indicated a very high mortality but it is probable that only severe and typical cases were then included in the classification, while the mild and atypical ones were overlooked or incorrectly diagnosed. Later statistics, collected since knowledge of the disease has become more common, indicate a mortality of 20 per cent. or even less. Death is usually due to bulbar paralysis, to starvation and asthenia, or to a complicating bronchopneumonia.

Several theories have been advanced as to the nature of the disease. These may be considered under four classes:

(1) That encephalitis lethargica is a cerebral form of influenza.

(2) That it is due to a symbiosis between the virus of influenza and some other unknown virus.

(3) That influenza leaves the patient in such condition that he is easily susceptible to the virus of encephalitis lethargica.

(4) That conditions favoring the occurrence of influenza also favor the occurrence of encephalitis lethargica.

The first three of these hypotheses are rendered improbable by the fact that a very large percentage of patients having encephalitis

lethargica give no history of influenza. Hence we are forced to the conclusion that this syndrome has no direct relation to influenza, but is a separate clinical entity which prevails under the same conditions.

Early in the present pandemic Von Weisner of Vienna reported the discovery of a Gram-positive diplococcus in the spinal fluid and for a time this diplococcus was regarded as the etiological factor in encephalitis lethargica.

C. M. Stafford has isolated a large Gram-positive diplococcus from the spinal fluid. It grew readily on ascitic agar and produced no capsule. It was not hemolytic and produced no green coloration on blood media. Guinea pigs inoculated intravenously and intraspinaly with this organism showed no ill effects.

Wegeforth and Ayer inoculated monkeys intraspinaly by lumbar puncture: (1) with material removed from lumbar cord twenty-eight hours after death; (2) with spinal fluid taken from a patient on the eleventh day of the disease. In both cases the monkeys remained free from disease.

In regard to these findings it may be said that in the first experiment the virus may have been inert within twenty-eight hours after death, while in the second experiment the virus may have disappeared before the eleventh day of the disease.

Morse and Crump recovered a non-motile staphylococcus-like organism from the posterior horn of the lateral ventricle in six consecutive autopsies on patients dying of encephalitis lethargica. This organism grew easily on ordinary media and fermented lactose and dextrose but did not ferment saccharose. It was agglutinated by sera from patients with encephalitis lethargica in dilutions up to 1-150. They produced a condition similar to encephalitis lethargica—with fatal outcome—by subdural injection of this organism into rabbits. From these fatal cases they recovered the organism in pure culture.

Similar injection of filtered cultures of this organism produced the same clinical picture but the organism could not be recovered from such cases and subcultures from the animal produced no effect when injected into other rabbits. Here then we have what seems to be adequate proof that the disease is caused by a relatively large non-filtrable organism.

Loewe and Strauss produced the characteristic lesions and symptoms of the disease by intracranial inoculation of rabbits with Berkeley filtrates of naso-pharyngeal washings from eleven of fourteen clinical cases of encephalitis lethargica. They recovered a minute filtrable organism from nasal washings in eleven of seventeen clinical cases and were able to cultivate this organism from the naso-pharynx in

ten of twenty clinical cases. In the above investigation control studies were uniformly negative.

On consideration of the findings mentioned above and the various theories advanced concerning the cause of the disease one can only conclude that no one has found the exciting cause and proven its connection with the disease. Netter of Paris, who has made very extensive investigation into every phase of the subject, is of the opinion that the disease is infectious and spreads much after the same manner as does acute anterior poliomyelitis.

In typical, well-developed cases the diagnosis is not likely to prove difficult. History of headache, vomiting, dizziness, and double vision are sufficient to arouse suspicion that the disease may be encephalitis lethargica. Finding stupor or torpor with cranial nerve palsies gives confirmation of this suspicion, and a clear spinal fluid showing increase in lymphocytes and negative Wassermann test make the evidence fairly complete. With such a case only one other diagnosis is tenable—that of tuberculous meningitis. In differentiating the two conditions the following points are to be considered:

	<i>Tuberculous Meningitis</i>	<i>Encephalitis Lethargica</i>
Onset	Usually gradual	May be gradual, but often is sudden
Temperature	Low at first—rising toward end.	Higher at onset and of brief duration
Course	Fatal within three or four weeks	May last for months, and is not necessarily fatal
Cranial nerve palsies	Appear late and are persistent	Often occur early and are irregular and may be fleeting
Spinal fluid:		
(a) Cell count	Low at first with progressive rise	Highest at first and gradually falling
(b) Globulin	High globulin content	Little globulin present
(c) Film	Typical film on standing	Usually no film
(d) Tubercle bacilli	May be found on repeated examination	Not found

Despite the most careful examination and study differentiation between the two conditions may not be possible until a relatively extended period of observation.

Acute anterior poliomyelitis often produces a picture very much like that of some cases of encephalitis lethargica. The following differences between the two conditions may aid in the diagnosis:

	<i>Acute Anterior Poliomyelitis</i>	<i>Encephalitis Lethargica</i>
Occurrence	Chiefly in summer and fall	Chiefly in winter and spring
Individuals attacked	Usually children	More than half of victims are over ten years old
Palsies:		
(a) Distribution	Extremities commonly involved	Usually involves cranial nerves. Involvement of extremities uncommon
(b) Time of appearance	*Occur early	Usually appear late
(c) Duration of palsies	Residual permanent palsy frequent	Residual permanent palsy infrequent

The differentiation between encephalitis lethargica and acute nonsuppurative encephalitis may be rather difficult. It is to be remembered that acute nonsuppurative encephalitis occurs as a complication of acute infectious disease, that its course is usually characterized by frequent convulsions, that it is of short duration, and that it is not characterized by profound lethargy. The differentiation may in final analysis rest on the history of an acute infectious disease immediately preceding the onset of cerebral symptoms.

While it is true that the majority of patients who have encephalitis lethargica recover, we must not forget that the course of this disease is very variable and cannot in any given case be predicted with accuracy. After the patient is apparently convalescent he may suffer a return of previous symptoms, or despite improvement of general condition he may become the victim of psychic disorders, a feeling of unreality, changes in disposition, irritability, or inability to concentrate his mind on any given subject. Neuromuscular symptoms, such as tremor, choreiform or athetoid movements, hiccough, or myoclonia may recur and persist for a long time.

Since no specific etiologic agent and no specific cure has been found for this disease, treatment must be largely general and symptomatic. As in other acute infections rest is of prime importance from the outset. The patient should be kept as quiet as possible, both physically and mentally. Excretion should be encouraged by large fluid intake and the nourishment kept high, for in severe cases

death may result from inanition because of difficulty in feeding. The rest should be prolonged even after the convalescence is well established in order that danger of relapse or distressing sequelae may be minimized. Sedatives and hypnotics should be used when necessary to control restlessness and delirium or mania.

Often marked relief from the general cerebral symptoms, such as delirium or stupor, may be obtained by removal of spinal fluid by lumbar puncture. If this gives relief it should be repeated as indicated by symptoms.

It is to be hoped that some of the numerous investigations concerning the etiology of this disease now being carried on will result in the discovery of the specific virus and the elaboration of an effective prophylaxis and a specific treatment for this latest plague.

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BIBLIOGRAPHY

- Netter, A.: *Bull. De L'Acad. De Med. De Paris*, Vol. 85, page 278, 1921.
 Hopp, W. M. and Mason, V. R.: *Johns Hopkins Hosp. Bull.*, Vol. 34, page 137, 1921.
 Barker, L. F. and Cross, E. S., Irwin, S. V.: *Amer. Jour. Med. Sc.*, Vol. 159, page 337, 1920.
 Wilson, S. A. K.: *Lancet*, Vol. 2, page 91, 1918.
 Wilson, S. A. K.: *Lancet*, Vol. 2, page 712, 1918.
 Reilly, T. F.: *J. Am. M. Assn.*, Vol. 74, page 735, 1920.
 Von Economo, S. E.: *Jahrbuch fur Psychiatric*, Vol. 38, page 253, 1917.
 Jelliffe, S. E.: *N. York Med. J.*, Vol. III, page 412, 1920.
 Von Economo: *Wcin. klin. Wochenschrift*, Vol. 52, page 393, 1919.
 Neal, J. B.: *Internat. Clinics*, Vol. 2, page 184, 1919.
 Koch, G. W.: *Jour. Iowa State M. Soc.*, Vol. 9, page 333, 1919.
 Neal, J. B.: *Arch. Neurol. and Psych.*, Vol. 2, page 271, 1919.
 Bassoe, P., and Hassin, G. B.: *Arch. Neurol. and Psych.*, Vol. 2, page 24, 1919.
 Fairbanks, A. W.: *Boston M. and S. J.*, Vol. 131, page 578, 1919.
 Stafford, C. M.: *J. Lab. and Clin. Med.*, Vol. 4, page 691, 1918.
 Wegeforth, P., and Ayer, J. B.: *J. Am. M. Assn.*, Vol. 73, page 5, 1919.
 Morse, P. F., and Crump, E. S.: *J. Lab. and Clin. Med.*, Vol. 5, page 275, 1920.
 Loewe, L., and Strauss, L.: *J. Am. M. Assn.*, Vol. 74, page 1173, 1920.
 Allen, W. C.: *South. Med. J.*, Vol. 12, page 231, 1919.
 Vaughan, V. C.: *J. Lab. and Clin. Med.*, Vol. 4, page 381, 1918.

EXTRA-PULMONARY CAUSES OF PULMONARY SYMPTOMS AND SIGNS

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That symptoms in one part of the body may be the result of disease in another part, is one of the considerations that make internal medicine an indivisible specialty. For it means that internal medicine is unified by a general viewpoint, and a general method of examination, which is applied whether the internist is examining for the presence of a general infectious disease, such as syphilis, or for a disease of the blood, of the heart, of the nervous

system or of the stomach; only by such a routine examination and its interpretation is he likely to find in any large number of cases the cause of his patient's symptoms.

The fact that symptoms referable to a certain organ are not always caused by disease of that organ has been most frequently pointed out in connection with, and is most easily exemplified in the case of the stomach. There is hardly a medical clinic in the country which has not a case of the gastric crisis of tabes with laparotomy scars, inflicted for the purpose of curing gall-bladder disease, or a gastric ulcer.

Of all the systems the respiratory system is perhaps least likely to have definite symptoms and signs, due to other than intrinsic respiratory disease. Reference is not made here simply to variations in the rate and rhythm of respiration, but to conditions more definitely indicating actual pathologic change in some part of the respiratory tract. In collecting the following list from our records we have selected cases in which the patient came definitely believing there was some lung or pleural or bronchial lesion and in which a distinct cause was found elsewhere.

Pulmonary* symptoms and signs caused by disease of

1. *The External Ear*.—Cough due to foreign body in the external ear is a condition well-known to the pediatrician. I have seen a child with a bean in the external ear in a perfect spasm of continuous coughing and laryngeal spasm amounting to stridor. The mechanism of this reflex is probably due to the association of fibres from the auricular branch of the pneumogastric (Arnold's nerve), which supplies the back of the pinna and the external auditory meatus, with the external laryngeal branches of the same nerve. Anyone who wishes to test it need only rub the end of a probe around the skin of the inside of the external auditory meatus and notice the consequent tightening of the bronchial muscles, culminating in a desire to cough.

This has, rarely, a clinical application in adults. Some years ago a man was sent to me as a suspicious pulmonary tuberculosis, on account of a persistent dry cough. He had lost no weight, had no fever, and was free from any important physical signs. I was at a loss to account for his symptom, until on one of his visits, he came into my office vigorously rubbing his ear with his little finger; he said he wished I could do something for the itching he had in his ears. On examination I found a well marked patch of seborrhoea in both external auditory canals. Treatment

*We prefer to use the word pulmonary to include bronchi, lungs and pleura, rather than respiratory, because we wish to exclude the idea of respiratory arrhythmias alone.

by an aurist cleared this up and, with it, the cough. Since this experience I have never failed to look at the ears in a routine examination for lung disease.

2. *The Nasal Sinuses.*—Webb,¹ in a recent article has pointed out the relationship of bronchiectasis and accessory sinus disease. He emphasized particularly several facts: that roentgen-ray examinations of the accessory sinuses should be made in all cases of chest disease in which the sputum has remained repeatedly negative to tubercle bacilli; that the patients, often, are entirely unaware of any nasal disease, all the symptoms pointing to the lower respiratory tract; that the prospect of relief from the bronchiectasis is inversely proportionate to the duration of the conditions. This is entirely in agreement with my own experience. For the sake of completeness, asthma caused by nasal irritation, as a polyp, should be noted.

3. *Chronic Tonsillar Infection.*—Several things tending to show a relation between the tonsils and the lower respiratory tract should be noted; one is the persistent cough which occasionally occurs after complete tonsillectomy in children; another is lung abscess following tonsillectomy. The one to which we particularly desire to call attention is cough and expectoration associated with chronic tonsillitis. Whether they are caused by the tonsillar infection or not is not proved. The mechanism is doubtless much the same as that of the nasal sinus infections. We have a record of four such cases that seem convincing. There was in each case the primary symptoms of cough and expectoration, with negative chest findings both by physical examination and X-ray, with the definite presence of infected tonsils, and finally with the clearing up of the condition on removal of the tonsils. In one case the connection was further emphasized, as the patient had numerous attacks of acute tonsillitis, when on each occasion the sputum would become very copious, gradually subsiding between attacks.

4. *Mediastinal Disease.*—The mediastinum is often spoken of as if it were a structure. As a matter of fact, it is simply a locality. It is that part of the thoracic cavity between the sternum, the vertebrae, and the inner borders of the lungs. It has been divided by anatomists into four parts—the superior, anterior, median, and posterior mediastinum. The superior mediastinum, the part which is clinically most frequently interesting, lies above the pericardium. The anterior mediastinum is that part between the pericardium and the inside of the sternum, while the median and posterior mediastinum are respectively the parts between the layers of the pericardium.

and between the pericardium and the inside of the vertebral column.

The superior mediastinum contains the following structures (1) the trachea, and part of the primary bronchi after their division, (2) the arch of the aorta, (3) certain large arteries—the innominate, the left common carotid, and the left subclavian, as well as some smaller ones—(4) veins—the superior vena cava, and the innominate—(5) certain nerves, the phrenic, pneumogastric, and recurrent laryngeal among them, (6) the esophagus, (7) the thoracic duct, (8) numerous lymph glands

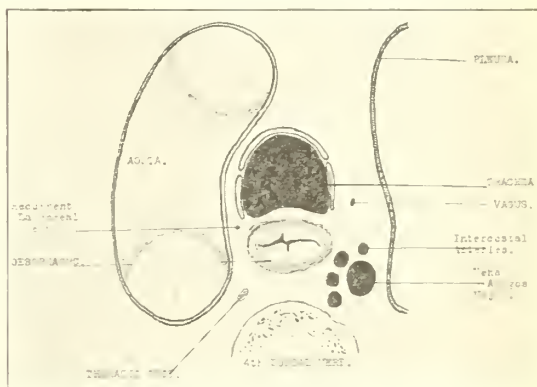


Fig. 1. Diagram of the mediastinum. Transverse section of the thorax at the level of the fourth dorsal vertebra.

largely on the right side and near the right primary bronchus, and (9) the thymus gland in childhood, and its remains in adult life. All of these structures are in such relation that disease of one is likely to affect the others.

Symptoms referable to the respiratory system arise when disease of some other of these structures press upon the trachea.

The conditions which most frequently do this are aneurism, Hodgkin's disease, sarcoma or other cause of enlargement of the mediastinal lymph glands, thymus hyperplasia, and abscess of the mediastinum arising from caries of the cervical vertebrae, or general infection. The pulmonary symptoms produced are stridor, asthmatic attacks and cyanosis. While they are distressingly uncomfortable, the attacks may be and usually are entirely without pain.

The most frequent mediastinal tumor, which compresses the trachea, is aneurism. In the radiograph of one such case (Fig. 2) the distortion and narrowing of the trachea can be plainly seen. It is well to remember that these cases may present themselves simply as asthma, and the superficial manifestations of them be indistinguishable from a typical bronchial asthma. During my service as interne at the Augustana Hospital in Chicago, a man was brought in, one hot summer night, with a char-

acteristic spasm of asthma—the first he had ever had. It was before the days of routine radiographs of the chest, and on physical examination, next day, by the chief of service, no finding beyond the lung changes was made

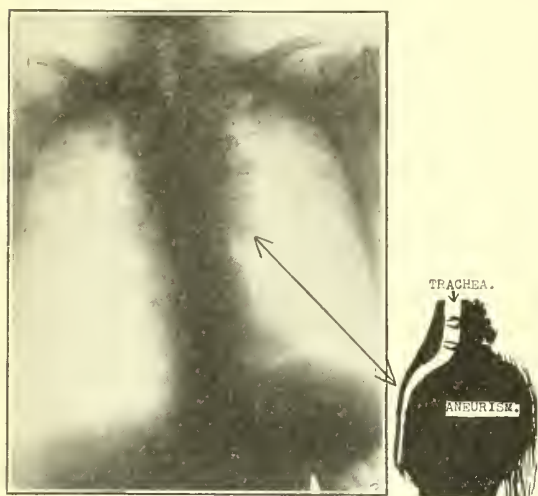


Fig. 2. Radiograph of aneurism. Interpretative diagram in lower right hand corner to show the trachea pushed aside and compressed by the aneurismal sac.

out. Forty-eight hours later the patient had a sudden hemorrhage into the throat and died. At autopsy an aneurism of the transverse arch was found, compressing the trachea down to a slit hardly large enough to admit a dollar.

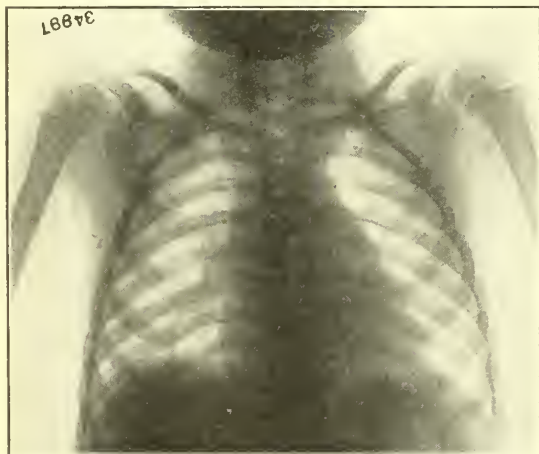


Fig. 3. Radiograph of enlarged thymus. Note elephant ear appearance on right side.

The radiographs of the thymus glands here reproduced (Figs. 3 and 4) should be studied in connection with the different picture made by the cervical abscess. The appearance of an enlarged thymus is quite characteristic. The thymus attains its maximum growth at the age of two years. It occupies the superior

and anterior mediastinal spaces. At puberty it rapidly diminishes in size so that it remains, in adult life, a fibrous strand, usually attached to the thyroid. "Thymic asthma," from pressure of the gland on the trachea, is a condition which, while not common, has nevertheless frequently been described. Chevalier Jackson has observed with the bronchoscope the compression of the trachea due to enlarged thymus. Crotti² has pictured the narrowed trachea in one of his cases. As is well known, the condition may come on very suddenly and cause death—the sudden death of status lymphaticus, of which enlarged thymus is a part. Sudden death in infants, variously ascribed to such causes as having the mother roll on

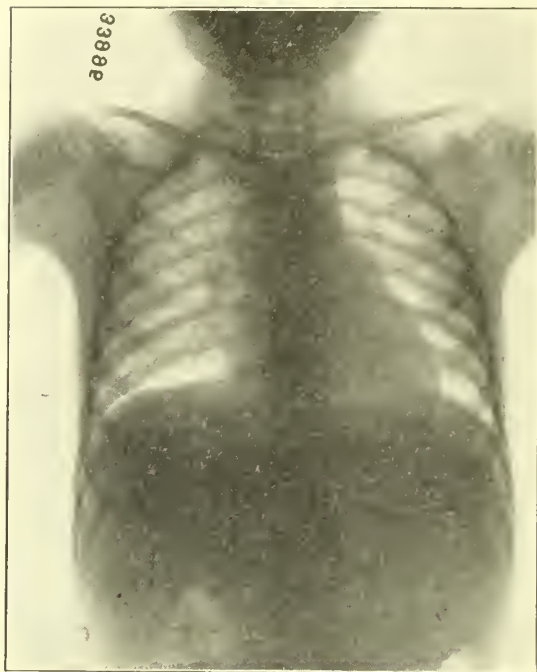


Fig. 4. Radiograph of enlarged thymus. Different type from Fig. 3.

the baby, the cat sucking the baby's breath, etc., may be due to enlarged thymus.

In treatment of enlarged thymus, the X-ray is completely competent to cause the gland to disappear. Several successful operations have been done, however—seven cases are recorded in Schwinn's paper published in 1908.³ The incision usually made was in the neck, over the thyroid, and the thymus pulled up and delivered through it.

It may seem like stretching a point to suggest that these cases could be mistaken for some pulmonary disease. The following case may be put in point:

The little boy whose radiographs are reproduced in Figures 5 and 6, was a patient of my colleague, Dr. C. W. Mercer. He was under treatment for a tuberculosis of the seventh cervical vertebrae. Sud-

denly, one day, the boy began to have a stridor and rapid respiration, with a rise in temperature. Dr. Mercer asked me to examine him. The suggested diagnosis was pneumonia. When I first saw him there was evidently considerable respiratory distress. His breathing could be heard across the room, with

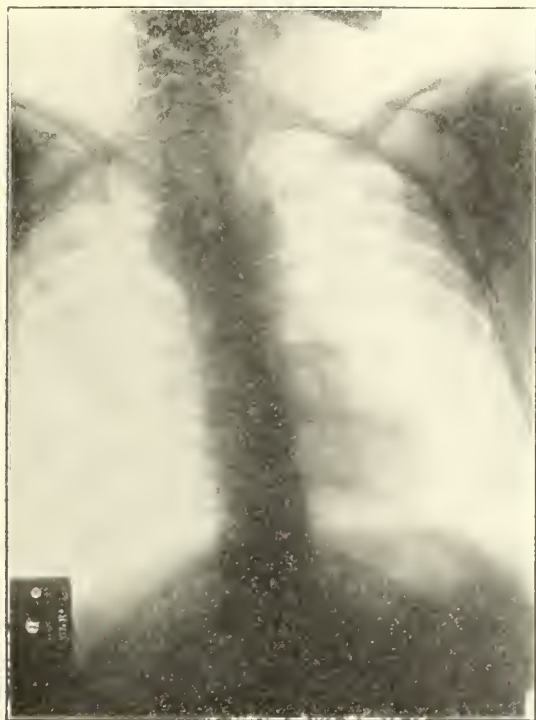


Fig. 5. Radiograph of mediastinal abscess, originating in tuberculosis of seventh cervical vertebrae. Before aspiration.

loud inspiratory and expiratory wheezing. There was a moderate cyanosis of the face and finger tips. Physical examination of the lungs was negative. There was no dullness, and on auscultation little of the distress in breathing was communicated to the stethoscope. It looked then as if there might be some laryngeal obstruction. A good view of the larynx was obtained but no pathologic change was seen. A radiograph of the chest was then suggested, which revealed the shadow in the mediastinum. It was evidently a cold abscess, which originated in the tuberculous process in the vertebrae. The abscess was aspirated from behind and a large syringe of pus was obtained. At this time the second radiograph was taken. The after course was not so fortunate. The abscess filled up again, the respiratory distress returned and after a second aspiration, the patient rapidly passed into collapse and died.

5. *Circulatory Disease.*—Hemoptysis in the course of a mitral stenosis is a well-known complication, and may mimic a tuberculosis exactly. To a less degree hemoptysis may occur in any myocardial failure.

Many authors refer to the changes—râles and dullness in the base of the left lung in the presence of a pericardial effusion. Christian⁴ has recently called attention to the same findings in simple fibrinous pericarditis without ef-

fusion. He has no explanation of the mechanism.

Pritchard and Mortensen⁵ have recently reported six very interesting cases, with comments, in all of which there were respiratory symptoms and signs, but in which the underlying pathologic condition was cardiovascular. In one, an angioneurotic edema, localizing in the lungs was mistaken for tuberculosis. In another there was a pericardial effusion. In another a chronic but slumbering endocarditis was the cause of a peculiar brown induration, localized in the right lung.

6. *Abdominal Disease.*—Adhesions or pressure on the underside of the diaphragm may cause pulmonary symptoms. In subphrenic abscess, due to the raising of the diaphragm, there is dullness and absence of breath sounds over a very large area of the back of the chest, which may be mistaken for a pleural effusion.

A most interesting case in which kidney disease apparently caused pulmonary symptoms occurred in the practice of my colleague, Dr. E. L. Miller, whose permission I have to report it.



Fig. 6. Same as Fig. 5 after aspiration.

A woman, aged about 40, began to have symptoms six years before presenting herself. At that time she had a pneumonia and a pleurisy. Her convalescence was protracted, and she was told that she had tuberculosis in both apices of her lungs. She continued to have temperature for a year. Then, upon rest, her symptoms improved. Two years later

she began to have pain in the right loin. Later she had pus in the urine. Her cough returned. It was non-productive, but sufficiently annoying to become a prominent symptom. It persisted for four years. Then Dr. Miller saw her, made a diagnosis of right-sided tuberculosis of the kidney, and removed the kidney.

The cough left her immediately and has never returned. Whether the cough was due to adhesions from the diseased kidney pulling on the diaphragm, or whether it was due to slight pulmonary change which was kept alight by the more active process in the kidney, cannot be determined by the findings Dr. Miller has. It is, however, a good example of a pulmonary symptom relieved by abdominal therapeutics.

7. Nervous Disease.—Such pulmonary symptoms as result from isolated nervous disease could more properly be called respiratory symptoms. Hoover,⁶ in a scholarly article, has recorded some of these "alterations in the nervous control of respiration which occur in several diseases we commonly see—tabes dorsalis, and sclerosis of the brain arteries."

Summary.—We have reviewed some of the extra pulmonary causes of pulmonary signs or symptoms. To summarize the matter from a different angle, putting the symptoms first: cough alone may be caused by ear disease; cough with expectoration may be caused by sinus disease or tonsillar infection; cough and hemoptysis by mitral stenosis or cardiac dilatation; asthmatic attacks may be due to aneurism, thymus enlargement, Hodgkin's disease or mediastinal abscess; dullness and signs of fluid in the chest may be caused by pericarditis, or by sub-phrenic abscess.

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REFERENCES

1. Webb and Gilbert: *Jour. A. M. A.*, Vol. 76, No. 11, March 12, 1921.
2. Crotti: *Jour. A. M. A.*, Vol. 60, No. 8, Feb. 22, 1913.
3. Crotti: *Jour. A. M. A.*, Vol. 60, No. 2, Jan. 11, 1913.
4. Schwin: *Jour. A. M. A.*, Vol. 50, No. 25, June 20, 1908.
5. Christian: *Jour. A. M. A.*, Vol. 71, No. 6, Aug. 10, 1918.
6. Pritchard and Mortensen: *Am. Rev. of Tuberculosis*, Vol. IV, No. 8, Oct., 1920.
7. Hoover: *Jour. A. M. A.*, Vol. 57, Nov. 25, 1911.

VOMITING IN INFANTS AND CHILDREN*

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The question of vomiting in infants and children is presented here because vomiting is a frequent and important symptom, differing in character and especially because it is an important symptom in a considerable number of conditions which should be definitely diag-

nosed. When a physician is told that an infant or child vomits he should be able to think of at least thirty conditions in which a child vomits, and he should also know that the same condition may exist in two children and still only one may vomit. How much different from this are the actual conditions, for to most physicians vomiting means only one thing, which is commonly expressed in the terms "The food does not agree with the child," and therefore "the food the child is getting must be discontinued or decreased in amount." This is not so bad in some cases, but when the infant is unjustly deprived of its mother's milk, is fed on various proprietary foods, or time is lost in correctly diagnosing the disease and properly treating the same, failure to think of all the causes of vomiting is of the gravest importance.

Before going into the various causes of vomiting it will be essential to consider the types of vomiting, for not all vomiting is alike in character and the character is an essential in diagnosis.

Vomiting may be acute, persistent or chronic. It may come immediately after feeding, delayed after feeding, or without reference to feeding.

The vomitus may consist of food, mucus, may contain bile, feces or blood, which may be bright or dark brown.

The manner of expulsion varies markedly, the child may be a ruminator, the excess being vomited easily and without effort or discomfort from habit or at will, may occur with eructation of gas or swallowed air, with effort, nausea and great discomfort, or it may be forcible or projectile.

Simply to regard all vomiting as alike is negligent, for if the manner of vomiting and the material vomited are not considered a definite diagnosis cannot be made.

As was stated before, when vomiting is met with in a child, at least thirty conditions in which vomiting is a symptom must be thought of; practically all vomiting falls into eight classes or groups.

(1) *Stomach Condition.*—(a) *Overloading.*—This occurs within a few minutes after feeding, is easily accomplished, the food comes up as it was taken. Much has been written about the size or capacity of the child's stomach and the amount of food that should be given. It must be remembered that during the fifteen or twenty minutes spent at feeding a portion escapes from the stomach and a four ounce stomach will often easily take a six ounce feeding.

(b) With eructation of gas or swallowed air.—This vomiting usually occurs soon after feeding, while the child is being moved, and is usually forceful and noisy, the mother know-

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ing that the child has "belched." To avoid this it is well to stop the feeding about mid-way during the feeding, holding the child upright over the left shoulder and "jarring" the child by firm beats on the back until the child has eructated.

(c) With gastric indigestion.—Here the vomiting usually comes later after feeding; the food that comes up has been partially changed, is rancid and the child usually has fever and is distressed. The vomiting may be forceful.

(2) *Obstruction at the Outlet of the Stomach.*—(a) In pyloric spasm and pyloric stenosis.—Here the vomiting is expulsive. During this time especially but also at other times one sees the peristaltic waves over the epigastrium. The vomiting occurs principally soon after feeding, the food may be returned as taken or be somewhat changed. The degree of pyloric obstruction varies but generally one may say that as long as there are normal stools the obstruction is not complete or constant. The first symptoms usually occur about the fourth to seventh day after birth, the child is apprehensive, cries a great deal and then in a few days vomits after all feedings. Changing the diet usually relieves the condition for several days. This is the most important type of persistent vomiting to diagnose.

(b) In spastic conditions.—Here the child holds its arms and legs in the flexed position, holds them rigidly and during this strained condition vomits easily and is usually constipated. To overcome this exercises, lime, cod liver oil and proper food are essential.

(3) *Reflex.*—(a) Psychic, voluntary vomiting.—This may occur because a child decides it does not want to take certain foods or drugs and attempts to spit and even vomit them up. Certain odors may nauseate the child as when castor oil is given. It should be easy to recognize this type of vomiting. It can be avoided by putting the finger back of the last tooth to avoid closing the mouth so the child cannot spit, then laying the child on its back and putting the food or drug in and holding it on its back until the attention has been diverted.

(b) Coughing may cause vomiting.—This is seen especially in whooping cough in which the child coughs until it has vomited. This can frequently be avoided for it is possible in most cases to persuade the child that the vomiting is not necessary or to divert the child so the paroxysm will stop.

(c) Masturbation.—This occurs especially in girls who have to make some bodily effort to masturbate. It is probably not reflex in many cases but rather the result of excessive exercise soon after feeding. The cure lies in the cure of the masturbation.

(d) Putting the finger into the mouth and irritating the pharynx, or irritation caused by worms may induce vomiting. For the former the placing of cuffs about the elbows so the hands cannot be carried to the mouth will relieve the condition.

(4) *Infectious Diseases.*—Vomiting is one of the most frequent symptoms in the onset of acute febrile diseases, especially scarlet fever, measles, pneumonia, malaria, infective diarrheas and influenza. In most cases it is associated with acidosis and is controlled by relieving the acidosis. In these diseases there is usually fever, the vomiting bearing no relation to the time or kind of food or drink, even water being vomited.

(5) *Nervous System Conditions.*—These may be divided into two groups. Vomiting associated with irritation of the meninges and vomiting associated with the general nervous equilibrium.

(a) Meningeal irritation usually causes projectile vomiting without reference to the meals and may be caused by concussion and fracture, by tumors or infectious diseases, as epidemic, infectious and tuberculous meningitis, solitary tubercles or syphilitic lesions and epilepsy.

(b) Cyclic, recurrent or periodic vomiting occurs principally in young girls after the first to fourth years of life. The attacks may come at intervals of from several weeks to several months, especially after fright, fatigue, picnics or other excitement. The child vomits everything that is taken, even water. The vomitus may contain bile. There is headache, fever at times, great prostration, no stools and paresis of the intestines. After several days the attack ends as abruptly as it began. Just before an attack the child is irritable and the attacks can be foretold by the mother and by urine examinations which show diacetic acid or acetone or both. This condition can be relieved soon after it is diagnosed, but only too often these children go on to puberty, having what are called "bilious attacks."

(6) *Intestinal Origin.*—(a) Intestinal obstruction.—When there is merely constipation vomiting is not usually seen, but in real obstruction whether it be because of hernia, intussusception, adhesions and so on there is vomiting which may even be fecal. In these cases the vomiting is projectile in character, especially when food is taken, there are intermittent paroxysms of pain and straining.

(b) In peritonitis and appendicitis there is vomiting of bile in most cases. It may occur only early in the disease but often throughout an attack of appendicitis.

(c) Malformations in the duodenum, colon and rectum cause vomiting, it often being hard

to diagnose the exact condition until post mortem.

(7) *Blood Conditions.*—(a) Vomiting may occur because of the blood elements themselves, as in melena in infants. The symptoms appear in the first few days of life. The vomitus is bright or dark red, is excited by nursing and there is blood in the stools. Transfusion of blood, injections of serum and gelatin and calcium lactate feeding are of value in the treatment of the condition.

(b) The blood may contain toxic substances, as in uremia and nephritis. There may be dropsy, suppression of urine. The diagnosis is made by urine examinations.

(8) Ulcer of the stomach in the newborn, acute stomach inflammation and tubercular ulcers usually cause pain, bloody vomitus and blood in the stool.

In conclusion, it is again emphasized that it is necessary to realize that vomiting does not mean only one thing. Every attempt should be made to diagnose the cause of this symptom before the diet or source of the food supply is changed. In at least thirty conditions vomiting is a characteristic symptom, and there are other conditions in which vomiting may occur. Whether every one or anyone agrees with my classification is immaterial, for if anyone will figure out a different classification he will also differentiate between vomiting in infants and children.

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DISCUSSION.

Dr. John Zahorsky, St. Louis: I think it might be well to mention a few mistakes of my own, because we often learn more from mistakes than from successes.

I had a child about three years of age who vomited continuously for several days. Everything was vomited. The physician in charge diagnosed some intestinal obstruction. I could not make a diagnosis. We made X-ray pictures of his stomach and bowels, and concluded there was an obstruction at the ileocecal valve, and he was to be operated on when he had a convulsion. Going over his nervous system we found a tumor of the brain beginning.

In another instance a diagnosis of pyloric stenosis was made because the infant had recurrent vomiting of severe character lasting several days but yielding to lavage and careful feeding—these attacks going over a period of months. In the interval the baby would thrive. Finally he had a very severe attack, and on going over him again in every conceivable way, we concluded there was an obstruction at the ileum. The operation proved a hernia in the mesentery.

In another case the clinical diagnosis was pyloric obstruction, and it proved to be obstruction in the duodenum.

In another case, the child was spitting up for months. Nothing was found wrong with the bowels, stomach, or pylorus. In persistent vomiting the greatest care must be used in studying the patient's history and examining him in every conceivable way both the stomach contents through a lavage, and

also X-ray examinations—because if you do not, you will continually make mistakes. Even with all our care, often at the operation, or at autopsy, we make the diagnosis.

Dr. Schorer: The principal reason for wanting to present on this subject, as I have said before, is because too often we lose too much time thinking of just one thing: there is something wrong with the food. So many of the causes are mechanical and should be taken care of. Some vomiting is unimportant, but we must not underestimate it until we have determined the cause. Sometimes you have difficulty in persuading the mother it is of importance, and in other cases the mother will be over-anxious and you have a hard job in persuading her to go on, telling her it is unimportant, but that it is essential she have good control over the child.

SCOLIOSIS*

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ST. LOUIS

Scoliosis is one of the most interesting problems in orthopedic surgery because it is unsolved. Almost every orthopedic surgeon has devised some method of treatment or has contributed some thoughts on its cause and mechanics, but as yet, no sure cure has been devised. The deformities in structural scoliosis tend to increase and, unless prevented, may become very marked and unsightly. As correction has not been very successful, prevention is most important. In this phase the general medical man can assist the orthopedic surgeon by carefully examining every child and by detecting any tendency to deviation in the beginning. In this connection I should like to urge a careful physical examination of all school children at least twice a year.

In this paper I shall outline a few of the methods of treatment and shall then indulge in a short theoretical discussion on treatment.

There are two types of scoliosis: (1) the postural or total curve, a long sweeping curve from the neck to the sacrum, usually the result of weak musculature or faulty posture; in this type there are no bony changes; (2) the structural curve, composed of two or more curves in which definite bony alterations have taken place.

The postural curve can be fairly easily corrected by gymnastics, postural exercises and by the use of a light support such as a brace, a leather or celluloid jacket.

The structural curve is the most difficult to treat and is the type to which I wish to confine my remarks. Before speaking of treatment, however, I wish to point out some of the most important changes that take place.

The structural curve is always compound. As the spinal curve develops, changes take

*Read at the 64th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 24-26, 1921.

place in the vertebrae, especially in the bodies. These become distorted and wedge-shaped, compressed on the concave side and expanded on the convex side. Coincident with the development of the curve, the bodies of the vertebrae rotate from the mid-line toward the convexity of the curve. Rotation is always present in structural scoliosis. There are many theories and explanations offered to account for rotation. I wish to mention only one or two of the more prominent ones. (a) If an elastic rod curved, say, antero-posteriorly, is bent laterally, it twists on itself. The spine is a rod of this type and acts similarly (Lovett). (b) The ribs on the convex side are expanded, stretching the muscles, which cause an elastic pressure that is transmitted posteriorly to the rib attachment, so causing the vertebral bodies to rotate in the opposite direction (Feiss). (c) The body weight acting through a laterally curved spine may be split into two components, one tending to displace further the vertebrae to the convexity of the curve. The brunt of the body weight is borne by the column of the bodies which are therefore displaced more than the unweighted and muscularly held arches and processes. The net result—that the bodies tend to displace whilst relatively the arches do not—is that convex rotation is set up (Tubby). This latter theory seems to me the more plausible, especially when one considers that compression takes place on the concave side and expansion on the convex side, rendering rotation on that side more easy. An important point, I believe, in the treatment of scoliosis.

Rotation is a serious and marked deformity. The ribs are carried backward, the angle becomes sharp, resulting in a most unsightly prominence. The thorax is flattened on the side of the curve.

The treatment of scoliosis is directed toward the correction of the lateral displacement and of the rotation. Of these rotation is the most difficult to correct. This may be accomplished either by gymnastic and postural exercises or by the application of some form of support or corrective apparatus, or by a combination of both. In all methods, however, the patient must be under constant and most careful supervision.

Postural and gymnastic exercises have had quite a vogue. They aim to correct and improve the posture and to strengthen the weakened spinal muscles so that they can hold the spine in the improved position. Many types of apparatus have been designed for use in this treatment. The principle of all is to apply pressure on the convex side of the curve and upon the maximum point of rotation. This is applied either in the erect or in the prone position. In connection with these corrective

measures active exercises are also employed which tend to correct the deformity and to stretch the shortened side. The great objection to these exercises, used alone, is that they are employed only for a short time each day, and unless the patient is kept in a recumbent position the rest of the time the spine tends to relapse. The process is slow and tedious and is practically of no avail in the more severe types.

The best results in the correction of the deformity have been obtained by the use of some form of corrective apparatus. Braces have been recommended and used by a number of men, but unless they are applied by one who is thoroughly familiar with their application, and unless the patient can be under constant observation, they are valueless. I have seen very few braces which will exert a true corrective pressure even under the most favorable conditions. I do not believe that any apparatus which can be removed or adjusted at will is a safe apparatus to use in so important a condition as scoliosis. If the brace is not properly adjusted or if it is not properly made, it does more harm than good, because the patient is deluded into thinking that something is being done and that the curve is being treated, while, as a matter of fact, the deformity may be constantly getting worse.

The plaster of Paris jacket is the best method for the correction of scoliosis. Once applied, the jacket remains in place and the corrective pressure is constantly maintained. The theory is that the spine is placed in the best obtainable position and the jacket applied in that position. The jacket is worn usually from six to eight weeks, during which period the deformed vertebrae are supposed to adjust themselves to the new position. At the end of this time a new jacket is applied with the spine further corrected and the process is repeated until the spine is straightened, or as nearly straight as can be obtained. In the later stage a removable jacket may be used, and be combined with postural exercises and gymnastics.

A number of methods have been devised for the application of the corrective pressure and the plaster jacket. The patient has been suspended in the vertical position hanging by the neck and arms, and pressure and counter pressure have been secured by the use of straps and bandages, or by the use of elaborate pieces of apparatus with rods, pads and screws so that pressure may be exerted on the point of rotation and on the convex side of the curve. Jackets have been applied in the horizontal position with the patient on the back or chest, and with corrective pressure applied during the application of the jacket.

Ewerhardt, at the Washington University Dispensary, has devised a method of treat-

ment in which the patient is suspended on the side with the convexity up, and correction is obtained by raising or lowering the pelvis and shoulders. The slings are also so arranged that torsion of the trunk may be obtained, thus exerting some corrective influence on rotation. Rotation is further corrected by manual pressure when the plaster is setting. In this method the position and the arrangement for correcting torsion differ from other lateral suspension methods.

All these methods have their warm advocates and all have resulted in improvement, especially in the less severe cases. There have, however, been very few actual cures. The difficulty is that the pressure is not applied to the spine directly, but through the elastic ribs and the more elastic abdomen. As a result very little actual corrective force reaches the spine. As Feiss has pointed out, pressure applied to the side of the ribs is transmitted to the posterior portion of the vertebrae at the rib attachments, thus tending to increase rotation. Thus pressure applied to the ribs to correct the lateral deviation also tends to increase the rotation. We cannot correct the lateral curve unless we also correct the rotation.

It does not seem to me that the treatment of scoliosis so far has been mechanically correct, and I should like to indulge in a few theories on the subject.

In scoliosis the spine is twisted, and in order to correct the deformity we must remove the twist. As the curve develops the bodies of the vertebrae rotate from the mid-line towards the convexity of the curve, and at the maximum point of curvature they are in a more or less lateral position, rather in an antero-posterior one. In other words, the spine is really in a position of hyperextension. At the same time the bodies have become wedge-shaped and are narrower in the anterior portion, or on the side toward concavity of the curve. As a result of the curve there is greater pressure on the inner or narrower border than on the outer side.

As has been stated direct lateral pressure applied to the ribs does not exert any great pressure on the spine itself, but is transmitted to the posterior attachment of the ribs and tends to increase rotation. If the spine is really more or less hyper-extended the spine is compressed toward the mid-line and expanded at the outer portion, or in the bodies. Lateral pressure to correct the curve would have to separate the articular processes and stretch the spinal muscles and ligaments, a difficult process with the pressure available.

In treating scoliosis the important point is the correction of the rotation. If this is reduced the spinal curve will tend to correct itself. To do this it seems important to bring

about conditions the reverse of those that originally resulted in the curve and rotation. This can be done by causing the spine to curve in the opposite direction, and by lessening the pressure on the compressed side. With the present methods we are trying to force the broad portion of the vertebral bodies through the narrow compressed side, a difficult task. This is made more or less difficult with the method employed. Less difficult when the patient is strongly suspended or is in a prone position, more difficult when on the back in a flexed position.

If we consider the spine as in a position of more or less hyper-extension, flexion of the body will result in an increase of the original curve. In other words, the narrow portion of the wedge is made narrower, and rotation and curve tend to increase. If on the other hand the back is hyper-extended, a curve in the opposite direction is produced. The narrow portion is broadened and pressure is transferred from the narrow edge to the broad edge of the wedge, thus facilitating correction of the rotation.

I believe as a result of these theories that the proper method of treating scoliosis is with the patient on the face and with the back strongly hyper-extended. I have been trying this method for the last few months, but as yet have not fully perfected the method of application sufficiently to warrant a report of cases. I submit these remarks merely as a theoretical discussion.

In conclusion, I wish strongly to emphasize the fact that scoliosis, even in the postural stage, is a very serious condition, postural cases frequently become structural. In the advanced stage treatment, at best, is unsatisfactory and to be of value should be commenced at the very earliest moment. Patients do not outgrow structural scoliosis; in fact, the deformity tends to increase. The very best treatment for lateral curvature is prevention. To ensure this children's backs should be examined frequently. This can best be accomplished by examining all school children at least twice a year. Then if there are any signs of lateral deviation, postural or structural, treatment should be begun at once.

3534 Washington Avenue.

DISCUSSION

DR. C. B. FRANCISCO, Kansas City: I want to endorse some of the things the essayist said—one being that our present methods of correcting scoliosis are not efficient; in fact, we do not get very far with pressure in attempting to correct them. I think Dr. O'Reilly has told you why. You are working too far from the bone that is involved. You do not get the pressure on the body of the vertebra, so most of the men interested in orthopedics have gotten away from the method of attempting to correct cur-

vature by pressure. I do not believe it is mechanically possible.

It is interesting to reflect on conditions of this kind. Looking back, one can see so many erroneous ideas and theories suggested and followed simply because they were suggested by some one in whom we had confidence.

I think you can judge by the number of apparatus shown on the screen as to something of the difficulty and the many attempts made to correct this trouble. From a practical standpoint, the corrective exercises—gymnastics and things of that sort—should be taught, particularly to medical students, as being of value in keeping up muscle tone. I think it is a mistake to believe the corrective exercises really correct the bony structure. They keep the patient in better condition. The muscle tone is a big factor. I regard these patients as being able to go along fairly comfortably until they have broken compensation. When their muscles give out, they have symptoms of pain and strain and distress. Exercise in the gymnasium will prevent this.

I think we should teach them that it can be used as a blessing if they will conform their living to the fact that they have an unbalancing of their back muscles which makes it impossible for them to do the physical stunts others do with a straight back; that by forming the habit of doing regular exercise and avoiding the excesses, they will be able to live long and enjoy their living as well as anyone else.

TREATMENT OF BICHLORIDE OF MERCURY POISONING

ORVILLE HARRY BROWN, M.D.

PHOENIX, ARIZONA

In the treatment of mercuric chloride poisoning I had an experience some few years ago while on the visiting staff of the St. Louis City Hospital which deserves a full report. Owing to my engrossment in other work this report has long been neglected and for various reasons cannot be given in detail. This brief mention is because of the apparently remarkable success of the treatment.

My ward was the white female. There was an epidemic of suicidal attempts among the unfortunate women of the city by the mercuric chloridè method.

In the admittance room of the hospital a routine treatment of stomach lavage was administered. During the early stage of my experience the usual drug treatments in vogue at that time were tried. The results were most satisfactory. Every patient who had taken a lethal dose a sufficient length of time before the stomach lavage, died on about the eleventh day. After ten to fifteen deaths the method of treatment was changed.

The new treatment consisted essentially of large amounts of fluid, chiefly water. The patient was told that if she wished to get well—and usually the determination to die was replaced by an equally strong determination to recover—she must drink a large amount of fluid, two to three gallons in twenty-four hours. The size of the patient governed the amount of liquid prescribed. Lemonade and orangeade, well sweetened, replaced some of the water. No other treatment except sodium bicarbonate was used unless there were special indications. The sodium bicarbonate had been used also in the first series.

Under the treatment—large amounts of fluid for ten to twelve days—the results were tremendously better than with the drug treatment. Every patient, or nearly every one, got well. The second series contained about the same number as did the first and

presumably a goodly number had taken lethal doses of the bichloride of mercury.

The treatment with large amounts of fluid—water, lemonade, orangeade, and an alkali—was apparently so thoroughly successful and so far as I can see harmless in all events, that I wish to recommend it for mercuric chloride and other poisoning where the kidneys are prone to be seriously attacked.

TREATMENT OF ACUTE POLIOMYELITIS WITH IMMUNE HORSE SERUM.—Edward C. Rosenow, Rochester, Minn. (*Journal A. M. A.*, Aug. 20, 1921), found that the intraspinal injection of immune horse serum failed to protect monkeys against intracerebral inoculation of virus, whereas intravenous injection protected them against properly gauged doses of virus, not too far removed from the human source, and that intravenous and intramuscular injections in man gave excellent results. He reports on the results obtained in the treatment of 259 cases by himself and others. None of the sixty patients treated in the preparalytic stage died, and all recovered completely without residual paralysis. Of sixty-one patients, with slight paralysis at the time of the serum treatment, all but one recovered completely, and in this one residual paralysis was limited to the shoulder muscles. Of 123 patients with advanced paralysis, eighteen died. Eleven of these had symptoms of involvement of the medulla at the time of the treatment. Thirty have residual paralysis; in fourteen the late results with regard to the paralysis are not known; sixty-one recovered completely. One of fifteen patients with sporadic poliomyelitis died. Six recovered with residual paralysis. The serum was given late in the disease to all of these patients. Nineteen of the 259 patients treated died, a mortality of 7.3 per cent. If eleven patients in whom serum could scarcely be expected to stay the process are eliminated, there are 248 patients whose conditions might have been affected by the serum. Eight of these died, a mortality of 3.2 per cent. Residual paralysis is known to be present in thirty-seven patients (21 per cent.), and if fourteen patients in whom the late results are not known are added, the total might be fifty-one (29 per cent.). Of 197 paralyzed patients, nineteen (9.6 per cent.) died; eliminating the eleven patients whose cases were hopeless at the time of the serum treatment, the mortality is 4 per cent. Thirty-seven (21 per cent.) of the 176 paralyzed patients who survived are known to have residual paralysis. In the fourteen the late results are not known, but, granting that they all have residual paralysis, which, judging by the early findings, is not likely, the total might be fifty-one (29 per cent.). This incidence of residual paralysis is far lower than was the average in paralyzed patients in a number of epidemics in Europe. The good effects noted at the bedside following the injection of the serum were in general proportional to the earliness of the injection. They were often striking, occurred after repeated injections, and were independent of the withdrawal of spinal fluid. When improvement occurred, it was with such regularity and in such marked degree in the early cases also excluded accidental occurrence and to indicate that the absence of deaths, the low incidence of paralysis, and almost total absence of residual paralysis are due to the early administration of the serum. The conclusion that immune horse serum, prepared by repeated injections of increasing doses of freshly isolated strains of the pleomorphic streptococcus, has curative power in poliomyelitis, especially when given in the early stage of the disease, Rosenow asserts, is warranted. Its general use in the treatment of this disease is indicated, and the need for early diagnosis in suspicious cases by spinal puncture is again emphasized.

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Missouri State Medical Association

FEBRUARY, 1922.

EDITORIALS

THE MEDICAL SOCIETY AND THE CRIPPLED CHILD

One of the most important movements ever initiated by the members of any medical organization was begun on December 20 when the St. Louis Medical Society instructed its committee on health and public instruction to make a survey of the crippled children in St. Louis whose parents were too poor to pay for medical treatment, and invite them to bring the children to the Society's headquarters where they would be examined and assigned to hospitals for treatment if the condition showed evidence of possible correction or improvement. This action of the Society was announced through the St. Louis *Post-Dispatch* and a card printed in that paper in several languages which made the plan clear to all who read it. The response on the part of the public was immediate and so general as to exceed the expectations of the members of the Society. The examinations were made on January 23, 24, 25, and about 280 children were examined, 80 per cent. of whom showed evidence of response to treatment, many of them with excellent prospects of restoration to normal.

This is a most laudable undertaking of organized medicine and should be followed up and continued annually. As an educational factor it will place the medical society before the people in a proper light and impress upon the public in a graphic manner the chief purpose of medical organization, namely, the improvement of the health of the people.

The news of the movement by the St. Louis Medical Society spread rapidly, not only in the state but throughout the country, and very soon the members of the Jackson County Medical Society living in Kansas City undertook a similar campaign in the western part of the state and invited the county medical society across the border in Kansas to join with them in making a survey of that part of the state, and Governor Hyde, realizing the importance of the undertaking and its bearing upon the condition of the crippled poor throughout the state, requested Dr. E. P. North, then president of the State Board of Health, to have the board make a similar survey of the entire state, and Miss Foley, of the Chicago Visit-

ing Nurses' Association, was present when the physicians were examining the children in order to learn whether such an undertaking might not be started in Chicago.

Many sidelights were thrown upon the conditions of these handicapped and shut-in little bodies and the sacrifices their parents and friends made in the effort to lift the little cripples out of the helpless class—sacrifices all too well known to the reputable physician. For instance, a little child with paralyzed legs resulting from infantile paralysis, had been an inmate of a commercial institution for many months, accepted by the institution only upon payment of \$500 and when that sum had been exhausted made a demand for another \$500, although no improvement had been shown and the condition as found by the members of the St. Louis Medical Society indicated little prospect of restoration.

This sort of work, we trust, is but the beginning of other activities by the county medical societies to do in a large way and as an organized body what the individual practitioner of medicine daily accomplishes, so that the people may know that the members of the medical profession are willing at all times to give their best service to the correction of human ills without pay, not only as individuals but as an organized body.

ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION

In the latter part of December the Committee of Arrangements for the entertainment of the American Medical Association, which meets in St. Louis May 22-26, were hosts to Drs. Geo. H. Simmons, General Manager, and A. R. Craig, Secretary of the Association, who visited St. Louis for the purpose of aiding the committee in making complete arrangements for the meeting. In January Dr. Frederick R. Green, Secretary of the Council on Health and Public Instruction, and Mr. W. C. Braun, General Manager of the Department of Commercial Exhibits, also visited St. Louis to complete plans for their activities. All of these officers were well pleased with the progress of arrangements and commended the committee upon the splendid work already accomplished.

The hotel committee announces that reservations are being made in great volume even at this early date, saying that the outlook seems to promise an attendance closely approaching the record if it does not exceed that number. The hotel committee urges all Fellows who expect to attend the meeting to make reservations as soon as possible and to do so with the hotel direct. The committee also requests that Fellows arrange wherever possible to

share a room with another Fellow. If satisfactory arrangements are not made with the hotel by Fellows, the hotel committee will welcome correspondence on the subject and use its best endeavors to obtain suitable accommodations. All correspondence of this nature should be addressed to Dr. L. H. Behrens, Chairman Hotel Committee, 3525 Pine Street, St. Louis. The principal hotels with rates and headquarters assigned to them follow:

Each year, as near his birthday as practicable, a distinguished surgeon is to deliver this lecture, to which are invited the profession and the medical students of St. Louis and vicinity. The first lecture was given in 1921 by Dr. Rudolph Matas, of New Orleans. The second lecture was by Dr. Samuel J. Mixter, of Boston, delivered on January 4, 1922, on "Our Old Enemy, Cancer." This lecture is printed in this issue of the JOURNAL.

ST. LOUIS' LEADING HOTELS (ALL EUROPEAN PLAN), THEIR LOCATION AND RATES

Hot.l. with Number of Rooms	Street Address	Without Bath		With Bath	
		Single	Double	Single	Double
American, 275..... <i>Diseases of Children</i>	7th and Market.....			\$2.50-3.00	\$4.00- 6.00
American Annex, 225..... <i>Pathology and Physiology</i>	6th and Market.....			2.00-3.00	3.00- 6.00
Beers, 114..... <i>Pharmacology and Therapeutics</i>	Grand and Olive.....	\$1.50	\$2.50	2.00-2.50	3.00- 3.50
Brevort, 50..... <i>Obstetrics, Gynecology and Abdominal Surgery</i>	4th and Pine.....			2.00	3.00
Cabanne, 43..... <i>Surgery, General and Abdominal</i>	5545 Cabanne.....			12.00-37.50*	
Claridge, 350..... <i>Orthopedic Surgery</i>	18th and Locust.....			2.50-4.00	4.00-10.00
Hamilton, 160..... <i>Surgery, General and Abdominal</i>	Hamilton and Maple.....			2.00-2.50	3.50- 4.00
Jefferson, 400..... <i>Orthopedic Surgery</i>	12th and Locust.....	2.50-3.00	4.00	3.00-8.00	6.00-10.00
Laclede Hotel, 265..... <i>Dermatology and Syphilology</i>	6th and Chestnut.....	1.50-2.00	2.50-3.00	2.50-3.00	3.50- 4.00
Majestic, 200..... <i>Nervous and Mental Diseases</i>	11th and Pine.....			2.50-3.00	3.50- 4.00
Marion Roe, 200..... <i>Laryngology, Otology and Rhinology</i>	Broadway and Pine.....			1.50-2.00	3.00- 4.00
Marquette, 400..... <i>Gastro-Enterology and Proctology</i>	18th and Washington.....	2.00-2.50	3.00-3.50	3.00-3.50	4.00- 6.00
Maryland, 240..... <i>Urology</i>	9th and Pine.....	2.00	3.00	2.00-3.50	3.00- 5.00
Planters, 400..... <i>Ophthalmology</i>	4th and Pine.....	2.00-2.50	3.00-3.50	2.50-5.00	4.00- 8.00
Plaza, 200..... <i>Practice of Medicine</i>	3300 Olive.....			2.00-2.50	3.50- 5.00
Roselle, 100..... <i>Preventive Medicine and Public Health</i>	#137 Lindell.....			1.50-2.50	2.50- 3.50
St. Francis, 120..... <i>Stomatology</i>	6th and Chestnut.....	1.50-2.00	2.50-3.00	3.00-4.00	4.00- 5.00
Statler, 650..... <i>Preventive Medicine and Public Health</i>	9th and Washington.....			3.00-7.00	5.50- 9.50
Stratford, 100..... <i>Preventive Medicine and Public Health</i>	8th and Pine.....	1.50	2.50	2.50	3.50
Terminal, 100..... <i>Preventive Medicine and Public Health</i>	Union Station.....	1.50-2.00	3.00	3.00-3.50	5.00
Warwick, 200..... <i>Preventive Medicine and Public Health</i>	15th and Locust.....				
Westgate, 125..... <i>Preventive Medicine and Public Health</i>	Kingshighway and Delmar.....	2.00	2.50	2.00-4.00 3.00	4.00- 6.00 3.50

*Weekly rates only.

THE HODGEN LECTURE

Ninety-six years ago John Thompson Hodgen was born. At the age of twenty-two he was graduated in medicine and began his career as an anatomist, as did so many of the distinguished men of his profession. Later he became the leading surgeon of the Mississippi Valley and our most important medical educator. He was a power in our community and in our nation. He served his country well in his early life and added much to the military surgery of his day and gave us an appliance that still holds its place in war as well as in civil practice. To do honor to his name and to help carry on the work of education in medicine and surgery so dear to him, the St. Louis Surgical Society and Medical Fund Society, which he helped to found, have endowed a lectureship.

STATE CARE OF DRUG ADDICTS

At the last regular session of the legislature a bill was passed providing for the confinement of drug addicts in a state or county institution until cured. Acting upon the authority of this law the Probate Court of St. Louis recently sentenced five drug addicts to the St. Louis City Sanitarium where they will be held in involuntary confinement until cured. For real results, both for those suffering from the habit and for society at large, the state has adopted what appears to be a very wise plan. Those who desire help to overcome the affliction may apply to the Probate Court and receive an order for voluntary confinement in a state institution where they will be held until free from the habit. For the more stubborn cases who resist voluntary confinement, the Probate Court will, upon information fur-

nished by any citizen, investigate the case of any person suspected of being a drug addict and if the court finds the evidence to be sufficient, the addict may be sentenced to involuntary confinement in one of the state hospitals.

This method of treating drug addicts will have a tendency to curtail the activities of those persons who, under the guise of a reputable institution for the treatment of habits, are in reality merely purveyors of the drugs. There are many reputable institutions conducted by skilled physicians where proper treatment is given, but the sort of doctor who, on the pretense of curing habits merely feeds them narcotics, is a menace to the state.

TO PROMOTE THE EFFICIENCY OF THE PUBLIC HEALTH SERVICE

The United States Public Health Service is composed of approximately two hundred regular and one thousand reserve officers; for the most part the latter are engaged in caring for ex-service men. An organization of the reserve officers has been formed with the special purpose of conserving their interests and in bringing about the most efficient care for the ex-soldier. At the present time the reserve officers are working under the handicap of no future, and are always in danger of being put on inactive duty without cause, hearing or notice.

The reserve officers are, almost without exception, ex-service men who saw their patriotic duty and served their country in time of need, and even now see a further call upon that same spirit of patriotism which prompted them to volunteer their services in time of war, now calling them in peace to continue the care of the men who look to their country for the best that medical science can offer them. It is plainly evident and only reasonable that both regular and reserve officers, men carrying on the same work and having the same qualifications, should have the same status. It is only reasonable that the physicians in this service, working conscientiously and giving the best of their ability, should have some permanent prospects for the future, which at present they have not.

It is to the interest of both the Government and the ex-service men that there should be a fixed standard of qualifications and an examination for obtaining a commission in the service, along similar lines adhered to by the army in the matter of reserves becoming regular officers.

If the reserve officer in the United States Public Health Service is not given a more permanent status, it is not reasonable to believe that the highly qualified physicians, those most

desired in the service, can or will remain indefinitely in the reserve corps.

The work of caring for the ex-soldier will not decrease in importance for many years for it has been the policy of this country to provide professional care for the war veterans, whether or not their disability was incurred in the line of duty, as is at present the case of the men of the Civil War, and the World War veterans suffering from mental diseases or tuberculosis.

The reserve officers organization has therefore presented a bill in Congress to place reserve officers on the same footing as regular medical officers, and allowing a limited number of nurses, occupational aides, and dietitians, who are especially qualified, to become a part of the permanent organization of the United States Public Health Service.

This is a movement that ought to be supported by the medical profession generally and surely will be recognized by the Congress as a necessary step in the proper care of wounded and sick survivors of the great war.

PAPERS FOR THE ANNUAL MEETING

The program committee is receiving titles of papers from members who desire to read papers at the next annual meeting of the Association, therefore those who wish to be included in the program should send titles as soon as possible. The committee is composed of Dr. R. D. Alexander, University Club Bldg., St. Louis; Dr. G. Wilse Robinson, Rialto Bldg., Kansas City, and Dr. E. J. Goodwin, 3529 Pine Street, St. Louis. Members may address any one of the committee, although it would facilitate the progress of the committee work if the titles are sent to the nearest member.

PENSIONS FOR THE BLIND

Under the new law giving pensions to the blind the first payments were made by the State Auditor on January 16. There are 3,800 claims. Of this number, 491 blind persons in St. Louis will receive checks, 229 in Jackson County, 1,114 in Buchanan County, and the remainder will be scattered all over the state. The act creating the machinery for putting the constitutional amendment into effect and providing for a tax of 2 cents on the \$100 valuation became effective June 20.

The claims are passed upon and certified to the Auditor by the various Probate Judges. Those entitled to the pension are residents of the state who are either entirely blind or their vision so badly impaired as to render them helpless to a very great extent.

NEWS NOTES

DR. NATHANIEL ALLISON, of St. Louis, was elected a member of the Southern Surgical Association at its recent meeting in Pinehurst.

DR. JAMES E. THOMPSON, of Galveston, Texas, Professor of Surgery, University of Texas, was the guest of the St. Louis Surgeons' Association at their December meeting, and delivered an address on "Cleft Palate." He was the house guest of Dr. Willard Bartlett during his visit in St. Louis.

THE Ophthalmic Section of the St. Louis Medical Society announces a course of lectures in ophthalmology, to be given in St. Louis by Professor Ernest Fuchs of Vienna during the month of February, 1922. Further information regarding this course may be obtained by writing to the Fuchs Lecture Committee, St. Louis Medical Society, 3525 Pine Street, St. Louis, Mo.

FROM *Science* we learn that an endowment of \$110,000 for the department of art as applied to medicine has been given to the Johns Hopkins Medical School. The gift, by an anonymous donor, was transmitted to the trustees through Dr. Thomas S. Cullen. This department has been established since 1911, with Max Brodel at its head, the same anonymous donor having provided funds for its maintenance.

"MEDICAL ASPECT OF GAS" was the subject of an illuminating address by Lieut. Col. H. L. Gilchrist, Medical Corps, U. S. A., and Medical Director of the Chemical Warfare Service, who spoke before the St. Louis Medical Society on the evenings of January 16 and 17. Col. Gilchrist is delivering these lectures in four of the principal cities under direction of the War Department. The lectures were illustrated with moving pictures and proved to be intensely interesting to physicians from a scientific aspect since they disclosed the high degree of development of chemical warfare.

ON January 24 Dr. Paul A. Lewis, of Philadelphia, addressed the St. Louis Medical Society on "The Relation of Heredity to Tuberculosis." Dr. Lewis, who was the guest of the Trudeau Club of St. Louis, is Director of Laboratories at the Henry Phipps Institute for Tuberculosis in Philadelphia and Associate Professor of Pathology at the University of Pennsylvania. He is well known for his researches in tuberculosis and has been con-

sidered one of the foremost authorities on the subject ever since he made his first contributions while with the Rockefeller Institute in New York.

AT the annual meeting of the State Board of Health held in Jefferson City, January 10, the following officers were elected: Dr. R. S. Vitt, of St. Louis, president; Dr. E. E. Brunner, of Farmington, vice-president; Dr. Cortez F. Enloe, of Jefferson City, re-elected secretary and State Health Commissioner. The board adopted a resolution expressing its appreciation of the work of the retiring president, Dr. Emmet P. North. The resolution follows:

Resolved, By the State Board of Health, that a unanimous vote of thanks, esteem and admiration be extended to its retiring president, Dr. Emmet P. North, and that a copy of these resolutions be spread upon the minutes of the board and an engraved copy presented to Dr. North.

How many children were born to the wives of physicians in the year 1920? Foolish question, you say? Not at all. That information is all set down in figures and percentages in the Bureau of the Census. A circular recently issued by the Bureau of the Census tells us the occupations of a large percentage of the fathers recorded in 1920 in the registration area. The wives of physicians bore 4,711 children in 1920, or an average of 2.3 for each mother. The circular states that the returns received included 1,461,604 children born in 1920, which represents all but 3.1 per cent. of the total number of children born in that year in the registration area. The farmers, including dairy farmers and stock raisers, were the most prolific, there being 345,519 children born to this class of workers, while the glass blowers had the least number of children, 276.

THE superintendents of the reputable hospitals in Missouri are planning the organization of an association of hospital superintendents to be affiliated with the American Hospital Association. Dr. L. H. Burlingham, Superintendent of the Barnes Hospital, St. Louis, is chairman of the committee on temporary organization and Dr. R. E. Castelow, Superintendent of the Christian Church Hospital, Kansas City, is secretary of the committee. This committee met in St. Louis January 18 to formulate plans that will be presented for consideration at a meeting of all the superintendents in the state to be held at St. Louis, February 17. Dr. A. R. Warner, of Chicago, Secretary of the American Hospital Associa-

tion, will be the guest of the superintendents at the February meeting and assist in completing plans for the permanent organization.

RECENTLY the United States Department of Agriculture has discovered that a certain chemical once used in medicine as an anesthetic and now used variously as a fire extinguisher, cloth cleaner, insecticide, and solvent for fats and gums, is very effective as a destroyer and expeller of intestinal worms. The name of this chemical is carbon tetrachloride. The effectiveness of this chemical against certain round worms has been announced by the department, but what may be the most beneficial use has just been brought out by tests on animals infested with hookworms. All the doses used, from twelve cubic centimeters to forty-eight, in each case given in two ounces of castor oil, removed all stomach worms and all hookworms. It has been equally effective for hookworms in dogs and foxes, and has been used with success against some of the various kinds of worms that infest the digestive tract of pigs. Medical men are now trying it out at several places as a possible cure for hookworm disease in man, and it gives promise of success.

DR. M. A. BLISS, of St. Louis, in company with Mr. Nelson Cunliff, Director of Public Welfare, Mr. L. R. Bowen, City Architect, and Mr. August Nedderlucker, Chairman of the Public Welfare Committee of the Board of Aldermen, all of St. Louis, visited Boston in January and inspected several institutions for the feeble-minded and insane. The party inspected the Wrentham State School for Nervous and Mental Diseases, Waverly Clinics for Feeble-Minded, Foxboro State Hospital and the Boston Psychopathic Institute, and hospitals for the mentally sick and infirm in Philadelphia including Blockley and Byberry. The general purpose of the trip was to ascertain the latest general plans of construction and methods of administration of those institutions in order to apply the information in the development of the new institution for the feeble-minded to be erected on the recently purchased municipal farm at St. Louis. It is estimated that there are 400,000 feeble-minded in the United States: In Missouri we have about 10,000 feeble-minded persons needing institutional care and about 1,000 of these are found in St. Louis.

THE International Health Board has accepted an invitation to co-operate in carrying out the general scheme of reorganization of the public health activities of the Philippine

Islands, which was recently made public by the President of the Senate, Manuel Quezon.

The participation of the board will consist in lending the services of certain members of its staff for a limited period and providing specialists as consultants and assistants to Philippine government officials in various lines of public health work.

The broad program adopted by the government for improving health conditions includes the ultimate consolidation of all health functions in a single department of health. Special attention will be given to developing the medical schools and providing extensive post-graduate instruction in public health, so that the much needed health workers may be trained locally. Fellowships for advanced study in the United States will be offered by the board to exceptionally promising and well qualified Filipinos, to fit them for more comprehensive work in the Islands. Attention will also be given to the training of women for nursing in the hospitals and for public service.

Dr. Victor G. Heiser, Director for the East of the International Health Board, and formerly Director of Health for the Philippine Islands, will go to Manila in February to assist in carrying out this extensive program.

THE U. S. Public Health Service announces a Venereal Disease Institute to be held under the direction of the Illinois State Department of Public Health at the Congress Hotel in Chicago, March 13-18, inclusive. Courses in syphilis, gonorrhea, the problem of prostitution and delinquency, clinics and their management, clinic social work and methods of health education will be given. Special features will include daily noonday luncheons and evening clinics.

The Institute at Chicago, like twenty others that are being held at central points throughout the country, offers the attractive educational features that characterized the All-America Conference on Venereal Disease that was held in Washington, D. C., during November and December, 1920. This regional plan for holding these institutes was determined upon when the suggestion of a second conference at Washington stimulated nation-wide interest and it was apparent that hundreds of people who wished to attend would be obliged to make long journeys at considerable cost. The Chicago Institute offers even greater possibilities for this section of the country than would a national conference at Washington, since the same high standard of instruction will prevail and the relatively smaller number in attendance will make for a closer relation-

ship between those in attendance and the instructors.

An invitation is extended to all physicians and especially those who are particularly interested in venereal diseases. Those who plan to attend are urged to register at once. Registration cards and programs may be obtained upon request from Dr. I. D. Rawlings, Director of Public Health, Springfield, Illinois.

THE Yale Corporation and the Sterling Trustees will appropriate from the Sterling funds the amount of \$1,320,000 for the erection of a new and modern building to be known as the Sterling Hall of Medicine. With this purpose in view the university has recently acquired most of the city block bounded by Cedar, Broad, Palmer and Rose Streets where the dispensary now stands, opposite the New Haven Hospital.

The Sterling Hall of Medicine will have a central entrance and building at the corner of Broad and Cedar Streets containing a library of approximately 12,000 volumes, an amphitheater with a seating capacity of about 250, the administrative offices of the dean and registrar, a room for faculty use, students' common room, and on the third and fourth floors single rooms and suites for unmarried instructors in the pre-clinical subjects. Extending along Broad Street a wing will provide space and laboratories on the first and second floors for the department of physical physiology, with like provision on the third and fourth floors for the department of pharmacology and toxicology. A similar wing facing the Brady Laboratory and the administration building of the New Haven Hospital on Cedar Street will provide on the first and second floors space for the department of chemical physiology, the two upper floors being given over to laboratory space for anatomy. Beyond the central structure will be an animal house where various types of domestic animals will be kept for experimentation and observation, these being available for all departments of the university located in the vicinity of the hospital. The power house, designed on the unit basis with stack and bunkers of sufficient capacity for future requirements of the hospital and the school, will be situated at the corner opposite to the central building.

One of the features of this building will be the provision for future expansion as the needs of the School of Medicine require and its finances permit. This means the ultimate completion of the quadrangle.

One of the features of the expansion of the Yale School of Medicine has been its closer affiliation with the New Haven Hospital and the Dispensary. In addition, the finances of

the hospital have been placed on a stronger footing and the physical rehabilitation has been begun.—*Science*.

OBITUARY

JAMES COWPER SHELTON, M.D.

Dr. James C. Shelton, of Chillicothe, a graduate of the College of Physicians and Surgeons, St. Louis, 1889, Post Graduate Rush Medical College, 1906, Fellow of American Medical Association and Member of Missouri State Medical Association; a specialist on the diseases of the eye, ear, nose and throat, was born in Montgomery County, Mo., February 4, 1862, and died in Chillicothe, Missouri, December 5, 1921, from nephritis, aged 59 years.

As a citizen Dr. Shelton was of the very best type. Interested always in the community's highest good, its health, educational, religious and civic welfare, he will be greatly missed. He was a member of the board of education, during which time he was its president, a member of Chillicothe Lodge No. 89, A. F. and A. M., an active member of the chamber of commerce, secretary and treasurer of the Livingston County Medical Society, and special examiner for the state in cases of the blind.

The profession unite in saying that Dr. Shelton was a physician of fine skill, but that his most striking trait was superlative honor and integrity in his profession. Thorough and unflinching honesty with patients, a noble devotion to the ethics of his profession, characterized this fine physician of the old school of medicine. "That man is richest who, having perfected the functions of his own life to the utmost, has also the widest influence, both personal and by means of his possessions, over the lives of others."

JAMES R. HUFFAKER, M.D.

Dr. James R. Huffaker, of Brookfield, Mo., was born March 17, 1847, in Linn County, Missouri, and died in Brookfield, Mo., November 15, 1921. He attended the State University at Columbia from 1868-71, graduating in 1871. This same year he took up the study of medicine under the tuition of Dr. L. E. Cross of Brookfield and attended lectures at the Homoeopathic Medical College in Cleveland, Ohio, in the winter of 1872-73. He entered upon his professional career at Brookfield, practicing until 1878 when he returned to school and received his M. D. degree from the St. Louis Homoeopathic College. Since that time he was actively engaged in practice

in Brookfield, being engaged in his professional duties at the time of his death. Dr. Huffaker was of a genial disposition, well liked among the profession and he will be missed by the profession of Linn County.

BYRON B. POTTER, M.D.

Dr. Byron B. Potter, of Lancaster, Mo., was born at Marseilles, Ohio, October 14, 1847. When only 16 years old he enlisted with the Fifteenth Ohio Regiment in the Civil War. After the war he entered medical school and graduated from the College of Physicians and Surgeons of Cincinnati, Ohio, in 1869, and practiced at West Newton, Ohio, for a short time. In 1870, he located at Lancaster, Mo., where he remained until his death, December 16, 1921.

He was a charter member of the Schuyler County Medical Society and retained his interest and activity in society work continuously. He served the society in various official capacities, and was vice-president of the State Medical Association in 1915-16. He was buried in the I. O. O. F. cemetery at Lancaster, by the I. O. O. F. fraternity, the members of the Schuyler County Medical Society serving as pall bearers.

J. B. BRIDGES, M.D.

MISCELLANY

THE ORGANIZATION OF THE MISSOURI STATE PEDIATRIC SOCIETY

In response to a call issued by special committee appointed the year before, several physicians interested in pediatrics met at Hotel Robideaux, St. Joseph, Mo., May 26, 1921.

By general consent, Dr. John Zahorsky, of St. Louis, acted as chairman of this meeting, and Dr. Damon Walthall, of Kansas City, secretary. The special committee report follows:

At the Jefferson City meeting of the Missouri State Medical Association a few physicians interested in the progress of pediatrics in this state met together at a luncheon and discussed the advisability of organizing a pediatric section of the State Medical Association, or an independent pediatric society. Dr. F. C. Neff, of Kansas City, acted as chairman of this meeting. It was decided to appoint a committee who shall canvass the situation and report at the next meeting of the Missouri State Medical Association.

The committee sent out the following letter to seventy physicians of the state who were known to practice pediatrics:

One year ago at the annual meeting of the Missouri State Medical Association held at Jefferson City, a few pediatricians present discussed the advisability of organizing a state pediatric society. A committee consisting of Dr. John Zahorsky, of St. Louis; Dr. E. H. Schorer, of Kansas City, and Dr. E. E. Moody, of Jop-

lin, was appointed to canvass the situation and report a year later. Several plans have been suggested:

1. The organization of a state pediatric society.

2. The organization of a pediatric section of the Missouri State Medical Association.

3. The organization of a pediatric society which meets annually with the Missouri State Medical Association.

The committee favor the third plan. It is proposed that the state pediatric society hold a business meeting at an annual dinner during the session of the Missouri State Medical Association; that officers be elected; that committees be appointed to take up various lines of work to improve pediatric practice in the state. A pediatric program may be offered the Missouri State Association from time to time.

Do you favor such an organization? Please indicate on the enclosed card your preference and mail.

Fraternally yours,

JOHN ZAHORSKY,
EWIN H. SCHORER,
E. E. MOODY.

In answer to this letter twenty-five replies were received; of these, twenty-three were in favor of some kind of a state organization of pediatrics. One-third of this number favored a pediatric section of the Missouri State Medical Association; two-thirds favored an independent organization. The committee finds that there is also a favorable sentiment to such an organization among the country practitioners. The need of fostering better pediatrics in the state need not be emphasized.

Inasmuch as the Missouri State Medical Association has as yet not established separate sections of any specialty, and inquiry among the officials as to the organization of a special section on pediatrics received no encouragement, your committee recommends the organization of an independent society which will meet annually at the same time and place as the Missouri State Medical Association.

JOHN ZAHORSKY, Chairman,
E. H. SCHORER,
E. E. MOODY,
Committee.

On motion the report was received, and the physicians present unanimously decided to organize themselves into a body known as the Missouri State Pediatric Society. The following physicians were present: F. W. Saunders, St. Louis; John Zahorsky, St. Louis; E. H. Schorer, Kansas City; Damon Walthall, Kansas City; O. B. Hall, Warrensburg; John D. Seba, Bland; R. F. Mills, Odessa; R. R. Haley, Brookfield; W. S. Wood, Oregon; J. M. Davis, Craig.

The following constitution and by-laws were adopted:

Constitution and By-Laws of the Missouri State Pediatric Society.

Constitution.

Section 1. This Society shall be known as the Missouri State Pediatric Society.

Section 2. The object of this Society shall be to encourage the greatest efficiency in pediatric practice among specialists and general practitioners, and promote child welfare.

Section 3. All members of the Missouri State Medical Association who are especially interested or

engaged in the practice of pediatrics are eligible to membership.

Section 4. The officers of this Society shall consist of a president, vice president and secretary-treasurer, who shall hold office for two years, and whose duties shall be those which are usually assigned to such officers in similar societies.

Section 5. This constitution may be amended by the three-fourths vote of the members present at any regular meeting, provided that due notice of the proposed amendment shall have been sent to all members at least two weeks before the meeting.

By-Laws.

Article 1. The meetings shall be held annually at the same time and place as the Missouri State Medical Association, due notice of which shall be sent to every member by the secretary. The annual meeting shall be a business meeting at which the officers shall be elected, committees appointed, and reports of officers and committees heard, and plans outlined for work during the ensuing year.

Article 2. The work of the Society shall be done by means of special committees: 1. Committee on statistics. 2. Committee on education. 3. Committee on child welfare. 4. Committee on membership. 5. Program committee, and any other committees that the Society shall from time to time appoint. These committees shall be appointed by the president.

Article 3. The Society shall offer to fill a part of the program of the Missouri State Medical Association at least every second year.

Article 4. The annual dues shall be one dollar.

Article 5. Five members shall constitute a quorum to do business at any regular annual meeting.

Article 6. These by-laws may be amended at any regular meeting by a vote of two-thirds of the members present.

The following resolution was adopted:

Resolved. That it is the sense of this meeting that this Society shall become a pediatric section of the Missouri State Medical Association at any time in the future whenever the State Association establishes separate sections.

The following officers were elected to serve for two years: President, E. W. Saunders, St. Louis; vice president W. S. Wood, Oregon; secretary-treasurer, E. H. Schorer, Kansas City.

Dr. Saunders stated that the appointment of committees would be announced later. On motion the meeting adjourned to meet next year, at the same time and place as the Missouri State Medical Association.

JOHN ZAHORSKY, Chairman.

DAMON WALTHALL, Secretary.

A VISIT TO A CHIROPRACTIC SCHOOL*

GEORGE DOCK, M.D.

ST. LOUIS

Criticism of medical sects or medical sectarians by a physician is of dubious value. Sectarians will accuse him of bias, of working "pro domo," and many disinterested persons will do the same. Few in the profession have an opportunity of seeing the work of sectarians, and so I have prepared this article, based on a visit I made in the spring of 1921, as well as on a rather thorough study of catalogues.

Certain important facts seem not sufficiently realized. The details of belief in or practice of a medical dogma form the smallest part of the prob-

lem of sectarian medicine. A much more serious thing is the possibility of developing schools and graduating low grade practitioners of medicine in large numbers; of carrying a great but insidious advertising campaign; of giving a large part of the population false but attractive ideas of physiology and hygiene; of complicating and corrupting medical practice laws, already sufficiently handicapped.

An essential feature, often overlooked, is the fact that, no matter how pure a dogma any irregular school may have in the beginning, it rapidly takes up all the methods of medical practice so far as its means permit. Yet the students and graduates of such schools are not counted in estimating the number of students and physicians for statistical purposes. If the reader thinks I am mistaken as to the future of these schools, I would point out that the homeopaths, within a few years and when their dogmas have been forgotten, now have all the standing of regular graduates, including admission to the government services. Osteopaths have some schools that compare favorably in equipment and course with those of the lower grade medical schools of a few years ago. The reader should not forget that we need more good medical schools but not more poor ones. Chiropractic remains as a comparatively pure dogma, but there can be little doubt that in a few years it will take up the equipment and methods of the regular schools as far as it is able and have nothing but the prestige of the name, the separate licensing bodies, the considerable body of alumni and the peculiar methods of advertising to differentiate it from regular schools.

The misunderstandings about the situation were impressed on me during the campaign for a separate chiropractic examining board in Missouri in the legislative session of 1921. In the hearing before the Senate committee it was depressing but also amusing to hear the sectarian misstatements. The legislators were assured that chiropractors did not practice medicine, but in the next breath were told how they cure all kinds of diseases in very large numbers of patients. The misstatements about comparatively elementary facts that were made would hardly be believed by any one who did not hear them, and yet such was the skill of the advocates of chiropractic that it was the impression of a number besides myself that if the matter had been put to a vote of the large and representative audience, the chiropractors would have won by a great majority. The common misunderstanding was again revealed when a number of us went to a hearing before the governor. The question was seriously asked by intelligent people whether osteopaths and chiropractors should not be allowed to practice in cases for which they have a special capacity. I had known before how hard it is for people to understand that none of the practitioners of these sects possess any therapeutic secret by reason of their training, and while some individuals among them may have skill in some line, it is purely individual and not the result of sectarian teaching or practice. Contrary to a common belief, the osteopath is not likely to be a good masseur or bone setter, or to perform miracles, and still less the chiropractor.

My experience with sick persons who had been in the hands of chiropractors had given me a very poor impression of that sect, but with the intention of getting a more definite idea of the subject I visited the "fountain head" of chiropractic, "the mother school;" namely, the Palmer School, of Davenport, Iowa, in the spring of 1921. I went without announcing myself, in company with a friend very familiar with medical study and medical schools, and I will give as accurate a picture as possible of what we saw and heard. I do not wish to convey the

*From *Jour. Am. Med. Assn.*, January 7, 1922.

idea that I consider myself an authority on chiropractic study or teaching, but wish to give a truthful account of a very large source of supply for those who appear like physicians. It is true, in a sense, that the method of study followed and the methods of practice inculcated are not worth the consideration of intelligent people, yet the fact that more than 3,000 potential voters spend a number of months and several hundred dollars apiece in getting the so-called training in a single school is a matter worth the consideration not only of physicians, but also of hygienists, economists, psychologists and jurists.

BUILDINGS AND EQUIPMENT

The buildings of the school are modest in comparison to the size of the classes, but are rapidly expanding. The home of the president is the first thing one sees on approaching the institution. The house looks as if it might have been built originally for a Davenport magnate in the seventies, with a recent addition around the side, giving it a very spacious and comfortable appearance. In the rear is a frame garage, originally no doubt a stable, with some Japanese bronze storks, looking rather incongruous, at the entrance. Next to a neat "memorial building" used for classes are the headquarters of the school, in an old building, partitioned off into numerous small rooms and narrow corridors, with a glass-fronted addition, which serves as a lobby. In the latter is a news stand, conducted by a blind man, who also sells bones, especially vertebrae, for from \$20 a set up. In the middle of the day, part of the space is occupied by a number of women, who sell cakes and sandwiches. Beyond this is a large building containing a cafeteria with a roof garden seating 1,500, and next to it a concrete building said to have 7 acres of floor space.

The secretary's office, just inside the old building, is hardly large enough to turn around in, but the secretary, a very genial and energetic man, gives an air of expansiveness and hospitality to the premises. Nearby is a small room used as a book store, but with very few books for sale.

At certain times in the day a tour of the institution is conducted by a very enthusiastic guide. The main demonstration is the "osteological laboratory," a small room almost filled with cases containing many remarkably fine specimens of bone lesions, especially kyphosis, scoliosis, spondylitis deformans, caries and repair of diseased or broken vertebrae, ribs and other bones, and a few comparative anatomic specimens. The guide explains the theory of chiropractic by means of the narrowed foramina in the scoliotic specimens, showing how the "vital force" that should go through the nerves has difficulties. He also talked much about the "innate mind" which he was confident was wholly independent of the body.

The cafeteria, which is said to be capable of feeding 1,200 people in an hour, has many individual effects in construction, such as a well with an "old oaken bucket," rustic trimmings and many mottoes of the same kind that ornament some other parts of the buildings. They preach a Hubbardeque philosophy in rather wearisome aphorisms. Another striking effect is produced by colossal busts of the founder, D. D. Palmer, of the son "B. J.," and of the wife of the latter, often spoken of as "Mabel," who introduces a much needed pulchritude into the scheme.

There are many class rooms. These are for the most part large, seating from 300 to 500. Some of them are in a loft building, and the class rooms open into one another so that one may have to go through one or two classes to get to the one desired. These rooms are all flat, with low ceilings. The seats are

numbered, and the attendance of each class is checked up by girls who go from row to row and note empty places, very few as a matter of fact.

In a room on the ground floor are machines for practicing the "chiropractic thrust." These are made of pieces of gas-pipe with a cap on top and a fairly strong spring inside them. The machines are used at odd times as well as by classes, and one can see many students through the day getting the "form" that is the essential part of the treatment. The "thrust," "a quick, spontaneous (!) thrust, with the hand upon the bony process of misaligned vertebrae," is made by placing the pisiform bone of one hand over the cap, or vertebra, in the patient, then putting the other hand around the wrist, with as much care as one sees in young golf players, and then pushing down the hand with a vigorous thrust. The only other thing that could be considered a laboratory is a small roentgen-ray installation labeled "Spinograph Department," where a special course is given for one month, at a charge of \$50.

In one of the buildings is a printing establishment, "The Prettiest Printing Plant in America," and there is also a "Private Branch Post-Office and Express Service."

STUDENT BODY

In speaking before the Senate committee, Dr. Palmer claimed 3,000 students. At my visit in April the usual statement was 3,200 with the frequent addition that within a few months there would be 5,000. These are said to come from all over the world, including such diverse countries as Bulgaria and New Zealand. "With one exception, its doors are open to all races" (catalogue). The large majority look as if they had come from the smaller towns or villages of the Middle West, and vary greatly in age. While the majority are young men and young women, there are not a few middle aged men and a considerable number of women not merely of certain age, but certainly aged. One striking thing about these students is the friendliness, earnestness and conviction of all. They show no objection to the appearance of a stranger; speak enthusiastically of the work; recommend treatment; answer questions freely, and are as attractive a body of students as I have ever encountered. It was not difficult to discover, however, that most of them had not bridged the stage between the grammar school and the course that in medicine leads to the doctor's degree. The farm, the barber shop and the hotel dining room or kitchen would seem to be the more natural work places for a great many. Some, however, seem to have come from the teacher's platform, and a few from normal schools or small colleges.

TEACHERS AND TEACHING

"About one hundred and fifty regular, full-time, salaried employees" are "engaged in the work of our many departments" (catalogue).

I went from class room to class room, and from these one would never realize that the chiropractor had anything to do with medicine as a biologic science. There is no laboratory study or teaching. The nearest approach to medical study probably is in the anatomic lecture room, so-called. This is conducted by Mrs. Palmer, "pleasantly styled his Better Two-Thirds, the wife of Dr. Palmer" (catalogue). In her class room were at least 300 students as counted by seats, all filled. Much might be said of Mrs. Palmer personally. She commands the class through her presence and personality, and is urbane but energetic in manner. The exercise of the day consisted in a parrot-like recitation of the names of all the veins from the toes to the heart. Questions were put to one student after another in the

numbered seats. Rather more than half of them indicated that they could not answer the questions, and sometimes half a dozen in a row would miss the same question. There was no thought of anatomic relations, function or anything more than names. Although the teacher evidently had memorized the names without omission of any, no matter how unimportant she gave the impression of being either self-taught or taught by an inexperienced teacher. Her pronunciation was quite lawless, so that she might begin pronouncing words like posterior, saphenous or azygos in a conventional manner, but if a student mispronounced it she would then take up the new way—"Oh, yes, 'saph' enous," 'posterior,' etc. She would frequently help out the answers when the responses were too slow by repeating a lot of names, such as: "Oh, yes! then, muscular, cutaneous and articular." The catalogue states that work in dissection may be taken at times, but members of the class said they had never seen it, and some said that dissection was illegal in Iowa (not a fact).

A great feature in the school is the "pit lecture," so-called, given by the head, familiarly spoken of as "B. J." The lecture room, which has about 600 seats, was filled, with a large part of the standing room occupied. There is a stage running across one end on which were a number of patients and assistants. The exercise was extremely interesting. A patient would be brought to the front of the stage and the history read. This gave about as much as is included in the primary complaint in an ordinary history, for example: "sour stomach, deafness, insomnia;" "rheumatism of shoulder;" (a young man) "mentally exhausted and physically rotten, has to take exercise to keep from getting worse." The diagnosis was announced without any further examination; sometimes by a member of the audience and consisted in a rapid-fire statement of a given vertebral dislocation. Sometimes, when the professor announced the diagnosis, a voice from the rear would say, "Why not such and such vertebrae?" "Why so?" inquired the teacher. "Because it gives so and so." The teacher would good naturedly add this to the diagnosis.

The spirit in all classes was very interesting to see. Great good nature and hilarity were displayed in all the rooms. Even in the pit lecture there was much noise and coughing and laughing and even talking. The manner of the president was usually jocular, sometimes quite familiar. After a bad but pardonable guess at an old woman's age he gave the next one correctly, at which a voice from the audience called, "Did you see the paper, B. J.?"

Another interesting exercise was a treatment clinic. This was also in a very large room with a stage, and on the stage and front part of the floor were chiropractic treatment tables. These are so arranged that there is an open space between the two parts of the table; the patient lying with the chest on the upper one and the hips on the lower one. At the Senate hearing I understood Dr. Palmer to say that they had 3,000 patients in the clinic daily. In Davenport however, the number was usually given as 1,700. Many of these are members of the class. The names and apparently the diagnoses are entered in books, and the clinic treatment is the whole thing in most cases, but in a few, a fleeting palpation of the spine was made. Out of several hundred people the day I was there, there was only one who looked as if he might be sick—a man with a severe kyphosis and paraplegia. Many of the "patients" looked remarkably well, having very much the appearance of the people one can see at Christian Science meetings plus the pink skin and plump panniculus revealed at the treatment clinic and quite different from those in any outpatient department. That the

treatment gives a certain satisfaction one could note by the expressions of many of the patients, who had an appearance almost of ecstasy from the moment of lying down on the table.

While the actual method of chiropractic treatment may be well known, I will describe what I saw. The patients come prepared to have the back exposed. The men have their shirts on backward. To the women, with the present style of dress, it was a simple matter to expose the part of the back necessary; in some cases all from the lumbar region up. On certain days so-called "coccygeal adjustments" are given. I happened to be there on the off day, but can imagine the situation.

The patient lying down, a rapid palpation is sometimes made, very often in fact none at all, as the site to be treated is already known; then the left hand is arranged for the thrust, the other hand fastened around the wrist, and a rapid push downward is made, the whole thing taking much less time than it takes to describe. A girl student sitting next to me, who said she had often been adjusted, said the palpation and thrust had no particular local effect, such as tickling. Those who imagine that the treatment is used only for local diseases should hear the recommendation of the effects in general malaise, as from being up too late at night; the value of the treatment for workmen, and its use in blindness, deafness, cancer of the stomach and liver, small-pox, measles, influenza, etc.

INCONSISTENCIES

There is a curious contradiction between political statements about the course and the facts. Before the Senate committee it was frequently stated that the course was one of three years of six months each. In Missouri House Bill No. 113, providing for a state board of chiropractic examiners, it is stated that the candidate must be "a graduate of a chiropractic school or college which teaches a course of not less than three years of six months each, or its equivalent." Many wondered what the students did in the intervening six months' period. As a matter of fact, there is no such period; the session is eighteen months continuously, but new terms begin every four months. According to the Palmer catalogue, students get from "six to twelve months' actual practice." The catalogue, p. 33, says: "The course is divided into eighteen consecutive calendar months comprising three collegiate years of six months each, all of which are continuous, there being no vacation periods." This somewhat original treatment of time extends to the school hours. There are said to be 4,103½ class hours in the scientific course, or with the spinographic course of 1,189 hours and the salesmanship course, 5,335 class hours. This would seem to exceed the hours in a four-year medical course, except that a chiropractic hour is not an hour, but a half hour.

The freshman course is four months. "After two months in sophomore class they are entered as sophomore adjusters, and at the end of eight months are promoted to junior class and entered as junior adjusters. . . . After being promoted to junior adjusters, students are granted permission to solicit patients outside of clinic, which cases they may adjust for pay" (catalogue, p. 19).

Before the Senate committee it was stated that chiropractors do not treat obstetric cases, and in House Bill 113 obstetrics is not named among the subjects taught. The catalogue states (p. 23) that "obstetrics is taught sufficiently to qualify the student to pass any of the state examining board's examinations in midwifery in any state where this is required. . . . Antiseptic precautions" are taught, yet much was said in the Senate hearing about the time

wasted by medical students in learning about poisonous drugs, which chiropractors never use.

Gynecology is taught, though not provided for in House Bill 113, and it is said (catalogue, p. 27) that a great proportion of cases of this character enter into the average chiropractor's practice.

A course of salesmanship is included in the course, for "despite the merit of an offering, the individual may not be successful because of his personal inability to sell it" (catalogue, p. 31). The synopsis of this course is interesting, but too long to quote (catalogue, p. 32).

FINANCIAL ASPECTS

As the fee for the course for a single person is \$350 "spot cash," \$400 for deferred payment (not less than \$150 initial payment, the balance at interest), or husband and wife \$437.50 and \$500, respectively, it can be seen that the industry is an important one from the financial standpoint. This is not mentioned as essentially bad, but it must have some bearing on the whole movement for organizing irregular schools.

How precarious the business may be appeared from a visit to another chiropractic school in Davenport, with a beggarly array of empty benches. I have mentioned in another place¹ the tendency for such institutions to move between two days to another town, sometimes another state. But one institution with 3,000 students paying large fees can easily carry on an extensive propaganda, as by full page advertisements in city papers, meetings, defense of chiropractors tried for breaking practice laws by corps of attorneys, and in hearings before legislatures.

CONCLUSION

So one must question, whether, as stated in a court decision, chiropractic is an innocent business. No one can object if a healthy or sick star, either of the opera, stage or screen, a novelist, a critic or an editor, a banker, a merchant, a physician, a society leader or an athlete wishes to be adjusted. The case is different in a child with measles, diphtheria or meningitis, a pregnant woman, or a patient with a malignant tumor. When we think of this it seems important that up to last winter chiropractors claimed that fifteen states and one territory have chiropractic boards, not insisting on medical training; that eight states give legal recognition, and that twelve supreme courts hold that "drugless healers" are not practitioners of medicine. But, as I intimated in the beginning, the matter is not one to be settled by physicians, so I shall omit further discussion.

INTERNATIONALIZING SERA STANDARDS

Cooperation of the foremost laboratories of the world, including the United States, for the unification of international standards of antitoxic sera has been begun on a large scale by the League of Nations Health Committee.

The United States has agreed to cooperate in this work through the United States Public Health Service at Washington, and through the presence at the conferences of Dr. Rupert Blue, Assistant Surgeon General, stationed at Paris. German scientists will also take part, as well as Japanese and representatives of all the greater European medical services.

The work involved is considered of great importance to the medical world. Up to now there has been as much confusion in the various national standards of measuring the strength of antitoxic sera for diseases such as dysentery, tetanus, diphtheria, syph-

ilis, meningococcus and pneumococcus as there has been in the different currency systems in the world.

This has had two serious effects. First, the American scientist, for instance, is handicapped in studying methods of treatment of various vital diseases abroad, because of the different standards of measuring the strength of the antitoxic sera employed; second, as international trade in sera is increasing, this variation represents not only an inconvenience but a positive danger to have their strengths listed at varying standards.

In order to obviate these difficulties, the Health Committee of the League of Nations began a series of studies last October which resulted in an international conference at London in December when some of the foremost scientists of the world came together to prepare plans for the first joint experimental inquiry of the sort ever attempted. A program was adopted whereby the study of the effects of the various standards was divided according to diseases amongst the various laboratories represented. To the Hygienic Laboratory at Washington, for instance, it was proposed to allocate the study of tetanus and diphtheria. As soon as these studies have been completed, they will be coordinated through the State Serum Institute at Copenhagen.

Other bodies which will cooperate in the work are the Medical Research Council at Great Britain, Pasteur Institute of France, State Institute of Italy, State Institute of Warsaw, Hygienic Institute of Basle, Pasteur Institute of Brussels, Kitasato Institute of Japan, as well as Austrian and German organizations.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.

Montgomery County Medical Society, Dec. 15, 1921.

Chariton County Medical Society, Dec. 23, 1921.

Clark County Medical Society, Jan. 13, 1922.

Reynolds County Medical Society, Jan. 17, 1922.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Second Meeting, October 21, 1921

1. A CASE OF SPONTANEOUS EVOLUTION.—By F. E. SULTZMAN.

By spontaneous evolution is meant a mechanism of delivery by which the body presenting transversely is bent upon itself and gradually forced down into the pelvis by uterine contractions. Marshall, in 1901, showed that thirty-four cases of spontaneous evolution occurred in 468,557 births. In the obstetrical service of the Washington University Dispensary, Washington University Hospital, and Barnes Hospital, since 1913, spontaneous evolution has occurred in one instance in 7,428 admissions.

The patient was a negress, age 20, pregnant for the second time. The previous labor was spontaneous and at full term four years ago. The patient was first seen in the out-patient department on June 21, 1921; her menstrual history showed that she was due July 12, 1921. The top of the fundus was four fingers below the xiphoid, presentation R. O. P., fetal heart in right lower quadrant and rate 150.

¹Dock, George: Physicians and Healers, *South. Med. J.*, 11:1 (Jan.), 1918.

Pelvic Measurements: Spines 25, crests 26, trochanters 29, external conjugate 17, diagonal conjugate 11, true conjugate 9, tuberosities $8\frac{1}{2}$. Wassermann was four plus.

On July 5, the patient was visited at her home and examination showed no dilatation of the cervix, no definite uterine contractions and the case was left at 2 o'clock. Later in the afternoon a midwife was called in, who gave the patient a large dose of castor oil and placed a quantity of lard in the vagina. About 7 p. m. the family noticed the umbilical cord was protruding from the vagina and called the out-patient physician. A diagnosis of prolapsed cord, which was not pulsating, was made; also some sort of abnormal position. She was immediately sent in to the Barnes Hospital. Rectal examination at 9:30 a. m. on July 6 showed the cervix was effaced and the margins $\frac{3}{4}$ cm. thick; the os admitted two fingers; the presenting part was well engaged. Small doses of pituitrin were ordered, 3 min., every 45 minutes. No vaginal examination. About noon the patient gave birth to a partially macerated male fetus. At 12:10 the presenting part was partially visible at the vulva. Two well rounded promontories were easily made out, giving the impression of a frank breech presentation. The presenting mass was delivered over the perineum and appeared so much like the breech that an attempt was made to deliver the legs which could not be found. Reaching in posteriorly the right shoulder and arm were delivered; the left shoulder and arm came out anteriorly and to the right. At this point the neck was made out and was extremely elongated. The chin was apparently held on the symphysis just to the right of the midline. The back then slid downward over the perineum until the buttocks appeared, then the head was born, the chin, mouth and nose coming out under the symphysis, the brow following. In order that this mechanism could occur, the neck was rotated 120° and the occiput pushed deeply into the lower abdomen, then the lower limbs were delivered very rapidly. The fetus weighed 2370 gms., and was 50 cm. in length.

Fetal head measurements: Occipito-mental 13, occipito-frontal 11.2, sub-occipito-frontal 11, sub-occipito-bregmatic 10, bi-parietal 7, and bi-temporal 9. An area about 8 cm. in diameter over the scapulae represented the most dependent portion of the presenting part: here the skin was rubbed off and was slightly swollen.

The mechanism in this case differed slightly from the most frequently described Douglass mechanism in which one shoulder usually presents and is delivered, following this the back and breech are delivered, following the breech the remaining shoulder is delivered, then the lower limbs are delivered, and lastly the head.

2. PNEUMOTHORAX IN TUBERCULOSIS AND BRONCHIECTASIS.—By DR. J. J. SINGER.

A case was presented with a history of tuberculosis two and one-half years standing, which had been treated by pneumothorax in New Mexico. As a result of a spontaneous pneumothorax complicating the artificial collapse the patient was sent home in Illinois. He presented himself in the out-patient department of the Washington University Clinic August 19, 1921. He had, on physical examination, a complete absence of breathing over the left chest with the absence of breath sounds, the heart was pushed to the right. A thoracentesis was done and fluid (clear) was found, and a few days later it was followed by the replacing of air with the pneumothorax outfit. In all 1500 c.c. of clear straw colored fluid was removed and 1500 c.c. of air introduced, then the patient was sent home. Two weeks after patient

returned with a temperature of 102. Examination showed chest almost completely filled with a cloudy fluid and marked displacement of the heart to the right. The fluid showed staphylococcus albus on culture. Later this fluid became purulent. Owing to the fact that the patient had a tuberculous empyema, it was decided to use the gentian violet (aqueous) instilled into the chest cavity and then withdraw the pus. That had no effect on reducing the temperature, and the patient was transferred to the surgical service. After consultation with Dr. Graham, it was decided that the "Friedrich" operation might offer him some benefit. The operation consisted of the removal of the 8th, 9th and 10th ribs and the removal of the intercostal muscle bundles. The 5th, 6th and 7th ribs are to be removed at a later time. The pleura was not opened. On October 26, the patient coughed up thin, bluish sputum. This, of course, denoted the presence of a bronchial fistula.

The interesting facts in the case are: 1. The artificial pneumothorax that was followed by the spontaneous pneumothorax. 2. The attempt to sterilize the pleural cavity with the gentian violet. 3. The replacing of fluid by air. 4. The Friedrich operation.

The use of pneumothorax in bronchiectasis was demonstrated by a series of slides.

The patient had a bronchiectasis for two years and had brought up a quart of pus a day from the lungs. Following three severe hemorrhages it was decided to collapse the lung. This was done and the patient has had no further trouble since.

DISCUSSION.

Dr. Graham: The treatment of tuberculous empyema has always been extremely unsatisfactory. If the pleura is opened and drained, disastrous results nearly always follow. On the other hand, if drainage is not accomplished, these patients frequently pursue a very violent septic course and die from the effects of an acute sepsis. A good deal of what we are trying to accomplish in this case is experimental. We hope to be able to accomplish something without opening the pleura. We have applied the principle of the Friedrich operation to this case. In other words, we are slowly producing a decompression by a gradual extra-pleural removal of ribs. Up to the present time we have removed only three ribs. The accumulations of exudate in the pleural cavity has been removed by repeated aspirations. The patient's condition is considerably better. If we succeed in obliterating the pleural cavity by this means, we shall of course permanently cure this tuberculous empyema. So far as I know this is the first time in which an operation of this sort has been undertaken in this kind of a case. The patient understands thoroughly that there is a considerable amount of experiment in it and because he realizes that he has no hope with ordinary methods of treatment he is willing to coöperate with us in carrying out our present plan.

The bronchiectasis case which Dr. Singer has been treating with artificial pneumothorax has certainly shown very gratifying results. I saw this patient with Dr. Singer at the time of her most serious illness and we decided at that time not to attempt any radical operative procedure for her bronchiectasis. It seems to me that in the treatment of bronchiectasis comparatively simple measures, such as Dr. Singer has outlined tonight, should be tried first, leaving the more radical operative procedures for those cases which do not respond to the less radical measures. We showed a patient before this society last year on whom we performed a complete resection of the left lower lobe of the lung for bronchiectasis with a perfect result. This patient had been treated previously with artificial pneumothorax and other means and had

shown no improvement. It was for that reason that we undertook to perform the lobectomy. This was also a case in which Dr. Singer had made the diagnosis of bronchiectasis confined to the left lower lobe.

One of the diagrams which Dr. Singer has thrown on the screen tonight seems to disagree with ideas which we have mentioned a number of times before about the mechanism of pneumothorax so far as the changed pressure relationships are concerned. As a matter of fact there is only an apparent disagreement in this respect, because Dr. Singer fully agrees with the ideas which we have previously mentioned.

Dr. Singer: I wish to state that there is no disagreement between Dr. Graham and myself. I am perfectly convinced that both lungs are compressed if one side is compressed. The cases we deal with are practically all tuberculous and there is a fixation of the mediastinum, otherwise to put air in one side would compress both lungs.

3. RENAL DIABETES.—By DR. S. W. CLAUSEN.

G. F., a boy 10 years of age, thought to be suffering from diabetes mellitus, entered the St. Louis Children's Hospital in January, 1921. He had had a difficult birth, followed by slow mental development. In January, 1920, it was noted that his face was puffy and sugar was found in his urine. He did not follow the strict diet prescribed and in spite of this developed no symptoms such as polyuria, polyphagia, polydipsia or emaciation. Physical examination showed a small undernourished boy with carious teeth, chronic tonsillitis and an undescended right testicle. Wassermann reaction was negative. Urine negative excepting for the presence of one per cent. of a reducing substance which fermented and formed osazone crystals identical with glucose azone. The blood sugar, however, was 0.07 per cent. After a forty-eight hours fast the blood sugar had fallen to 0.06 per cent, and the urine had become sugar free. Patient was tested by the administration of 14 grams of carbohydrate in the form of milk and bread and later with 50 grams of carbohydrate with milk, bread and added cane sugar with the following result:

	14 gram carbohydrate		50 gram carbohydrate	
	Blood sugar %	Urine sugar %	Blood sugar %	Urine sugar %
Fasting.....	0.08	1.00	0.076	0.52
After ½ hour.....	0.094	0.76	0.102	1.88
After 1½ hours.....	0.083	1.70	0.097	1.04
After 3 hours.....	0.061	0.56	0.086	.57

The case obviously is one of the so-called renal diabetes, characterized by an exceedingly low renal threshold for glucose and was given a good prognosis. Patient's general condition has been good, although there has been no restriction of his diet. He still shows one per cent. sugar in his urine, and blood sugar of one per cent. one hour after a meal.

4. REPORT OF A CASE OF HODGKIN'S DISEASE.—By DR. C. H. EYERMAN.

This patient presented himself at the Surgical Clinic, O. P. D., Washington University Dispensary, on July 7, 1921, and was immediately transferred to the medical service. His complaint was a lump in the left neck and under the right arm, present only for the past three weeks. The lump in his neck becoming so large that movement of the head was interfered with and painful.

The family history was of no moment; has never been seriously sick; an unimportant marital and habit history.

The salient features of his physical examination, with the exception of the usual mouth foci, were a visible, hard, non-pulsating, non-tender tumor in the left supra-clavicular region, measuring 6 cm. by 5 cm. The skin was freely movable over it and the mass seemed attached to the tissues beneath. A small mass 2 by .5 cm. was found posteriorly to the large mass, and freely movable. In addition there was a bilateral discreet adenopathy. There was a bilateral axillary adenopathy about the size of the thumb, freely movable and one mass at the level of the fourth I. C. S. on the right 2 by 1 cm. Large inguinal and epitrochlear glands were also found. The heart and lungs were essentially negative. Liver edge two finger breadths below the costal margin. The spleen was not felt. Blood Wassermann was negative and remained negative on successive examinations. The complement fixation for tuberculosis was negative. He had 63 per cent. hemoglobin (Sahli); 4,190,000 red blood cells; 6,000 leukocytes, of which polymorphonuclears were 67 per cent., small mononuclears 27 per cent., large mononuclears 1.1 per cent., polymorphonuclear eosinophiles 1.1 per cent., transitionals 3.5 per cent. Two glands were excised, namely right epitrochlear and the mass at the level of the fourth I. C. S. right anteriorly. Report from the department of pathology was as follows: Nodules have histological character of Hodgkin's disease. There is no suggestion of tuberculosis.

He was placed on X-ray therapy and now after four exposures at an interval of three weeks each, the mass in the left supraclavicular region has entirely disappeared and the axillary glands have receded to the size of the end of the little finger. The last blood examination shows no essential changes over the first one.

The case is of interest because of the apparent acute course without febrile or constitutional disturbances, and the remarkable, one might say startling result, of X-ray therapy.

DISCUSSION.

Dr. Dock: There seems to be one point in the case which should not be forgotten and that is the harmlessness of an exploratory operation. Too many people do not remove material for fear of spreading infection. Our experience here shows this to be groundless. Another thing is the result of X-ray treatment. We are often asked what effect can be promised after treatment. You can tell the patient that the earlier the treatment is begun the earlier the cure. You can only know how soon and how much by trying. The third point is the value of photographs as records. In every such case there is a very serious loss if photographs are not taken showing the exact condition when the treatment was started. Instead of writing down a long description simply take a view, a kodak picture would serve the purpose, showing the important things. It takes less time to do that than to write long descriptions.

5. DIGESTIVE INSUFFICIENCY (COELIAC DISEASE).—By DR. W. McKIM MARRIOTT.

Th. B., age 2½ years. Normal at birth. At one year of age weighed twenty pounds and was healthy and strong. At about this time he developed a severe diarrhea and lost four pounds weight in ten days time. Has never been well since. The most prominent symptom has been diarrhea. Stools have varied from three to twenty a day and have been large, light colored, often frothy or greasy in appearance and have a very foul smell. Chemically these stools have consisted almost entirely of soaps with some neutral fat. Temperature normal or subnormal.

Patient sits alone but has never walked and only says a few words.

At the present time the child weighs fifteen pounds. He is very pale, shows moderate evidences of rickets, subcutaneous fat is practically absent. The abdomen is prominent. Red blood count 2,500,000. Hemoglobin 60 per cent. White blood count 6,000. Wassermann reaction negative. Tuberculin skin test and complement fixation test negative. Urine negative. Stools, no ova or parasites.

The child has been under observation for the past seven months. At the time he was admitted to the hospital he was suffering from generalized edema and this edema has recurred at intervals. Chemical analysis of the stools showed that only about ten or fifteen per cent. of the fat of the food was absorbed, the remainder being excreted as soaps and fat. On account of this fact the fat in the infant's food was diminished to a minimum. The addition of sugar to the food led to increased diarrhea, so this was omitted from the diet. As the edema was considered a "nutritional edema" the result of a deficit of fat soluble "A" vitamins, an effort was made to supply this substance by administering small amounts of codliver oil. The diet consisted of the curds from skimmed milk mixed with from 5 to 20 c.c. of codliver oil, the whole mixture stirred into skimmed lactic acid milk. Scraped beef and some cereal, potato, orange juice and spinach were given daily. On such a diet, which supplies all the necessary elements of nutrition, the edema disappeared and the child improved. He has had a number of set-backs, but at the present time is showing an upward tendency. He is now able to absorb approximately fifty per cent. of the fat given. He has been given two transfusions of citrated whole blood.

The pathogenesis of the condition is obscure. There is a specific failure to utilize fats, although protein is well utilized. The administration of bile salts in considerable amounts to this infant failed to influence the fat absorption. There was a marked deficit of hydrochloric acid in the infant's stomach. The addition of hydrochloric acid in considerable amounts to the food resulted in better utilization, but led to a mild acidosis.

DISCUSSION.

Dr. Sachs: What is the ultimate fate of these children?

Dr. Marriott: By the time some of these children are four or five years of age they begin to improve and become fairly normal. Others at the age of eight or ten years remain about the size of a two or three-year-old child.

6a. OSSEOUS TISSUE IN HERNIOTOMY WOUND.—By DR. W. M. JONES.

Patient, R. F., entered hospital October 11, 1921, with diagnosis of left inguinal hernia. Family history, personal history and past diseases, negative.

Past history: Complained of pain in right groin on April 19, 1919, when jumping; was also struck in the right groin by a spraying machine. It was thought at the hospital that he was suffering with appendicitis. Shortly afterwards a lump formed in his right groin that appeared and disappeared frequently. After his discharge, in June, 1920, he was diagnosed right inguinal hernia and operated by Dr. E. J. Dwyer, of Omaha.

Present complaint: Patient complains of pain over the herniotomy scar when it is pressed upon, and has also a tender lump in the scar. He has more pain when working in a stooping position and often after walking more than usual suffers with a pain in his right foot at night. Examination of right inguinal region shows a broad red 5-inch scar of his former operation. There is a hard irregular tumor mass in the

scar of the right groin above Poupart's ligament. It is slightly movable in all directions, apparently about the size of a walnut, and is very tender. The right testicle is atrophic. The X-ray examination is as follows: "There is a hazy, irregular, opaque mass located anterior to and extending about one-half inch above the horizontal ramus of the right pubic bone. This mass is about one and one-half cm. wide and three cm. long and presents the appearance of a partially calcified cartilaginous mass near the lateral extremity of the body of the pubic bone mentioned. The appearances would indicate that this is probably a chondrosis that has formed at this point and is partially calcified and there is the appearance of a slight periostitis having involved the entire pubic bone and which may still be slightly active."

On October 20, 1921, under local anesthesia, we carefully dissected out this tumor mass. The specimen gives the appearance of bone, macroscopically. The laboratory report is as follows: Sections of the bone show it to be a hard cancellous bone, with no evidence of inflammation or new growth.

6b. TUMOR OF THE PINEAL GLAND. By DR. W. M. JONES.

7. PYLORIC ULCER IN TABES SIMULATING GASTRIC CRISIS.—By DR. E. A. GRAHAM.

Male patient, age 39. Occupation, clerk. Entered Neurological Service of hospital from the out-patient department with a diagnosis of tabes dorsalis.

C. C. Shooting pains all over body but particularly in abdomen. Pain in epigastrium since 1916 with vomiting after meals. Chancre 17 years ago. Antisyphilitic treatment since 1916 has given some relief of epigastric pains. Appendectomy elsewhere in 1916 without relief. At present, incontinence of urine; ataxia in the dark; pupils fail to react to light, but react to accommodation; knee jerks absent. Since 1915 patient has had 7 injections of salvarsan and 5 courses of mercury treatment.

On admission, blood Wassermann negative. Spinal fluid Wassermann 4+. Hemoglobin 80. Leucocytes 7,200. Red cells, 4,672,000. Has lost 23 pounds since August 30, 1921. X-ray examination by Dr. Mills showed pyloric ulcer with considerable 24-hour residue in stomach.

Patient transferred from Dr. Schwab's service to Surgical Service and operation performed October 22. At operation extensive abdominal adhesions were found which made it difficult to enter peritoneal cavity. Omentum found studded with numerous small elevated gray nodules about the size of the head of a pin which resemble miliary tubercles. The liver was slightly enlarged and contained a considerable amount of scar tissue. The stomach was large. The pylorus was densely adherent to the under surface of the right lobe of the liver. There were no enlarged glands on either lesser or greater curvatures. No evidence of metastasis in liver. The growth was considered to be benign. Resection not attempted because of difficulty from adhesions. A posterior gastroenterostomy with two-inch stoma, no loop method, accordingly carried out. Post-operative course was uneventful and the patient was entirely relieved of his epigastric distress following the operation. No more vomiting occurred. He was placed on ordinary medical treatment of gastric ulcer after the operation.

An X-ray examination three weeks after the operation showed the stoma functioning admirably and the gastric motility excellent. The ulcer crater still persisted. The patient was discharged November 22 apparently completely relieved of his epigastric distress.

I had hoped that Dr. Mills would be here tonight to participate in the discussion on this case. My own part in the case has not been very important. The credit of the diagnosis belongs to Dr. Schwab and to Dr. Mills. The most interesting thing about the case is that it is one which frequently would be passed up as a case of gastric crisis in tabes. Dr. Mills has told me that in the past two or three years he has found an organic lesion in the stomach or duodenum in every case of supposed gastric crisis in tabes. I believe this case is about the fifteenth one in succession in which he has found an organic lesion. It, of course, brings up in a very forceful way the question as to whether or not a gastric crisis in the ordinary sense ever occurs in tabes. Certainly all suspected cases should be thoroughly examined for the possibility of an organic lesion.

DISCUSSION.

Dr. Ernest Sachs: Dr. Graham referred to a case of tabes in the hospital now who had been admitted previously. Dr. Mills did a fluoroscopy some years ago and X-ray pictures were taken at that time. When he came in this time the doctors and internes got the old plates out and Dr. Mills found in them evidence of gastric lesions which, several years ago, had not been identified. The plates taken at the present time show a similar condition. There was no evidence of ulcer. The man was in such a deplorable condition that he had to have one-half to one grain of morphine a day to keep him at all comfortable. He was sent to the out-patient department to be treated for gastric condition but as he could not take his morphine when he needed it he was sent in to the hospital. As treatment for this condition did not relieve him we can only do a spinal operation which is a radical procedure and consists of cutting the antero lateral columns of the cord.

Dr. Graham: This man was only at the O. P. D. one day and came back to the hospital because he could not get his hypodermic when he needed it, and could not take it by mouth.

Dr. F. R. Fry: The developments which are now appearing as a result of Dr. Mills' careful work show how important and useful it will be to us. We sometimes have pain crisis in the thoracic and abdominal regions just as in the legs and elsewhere. We are free from any gastric symptoms. When they are entirely free from a stomach reaction, there would be no necessity of investigating them from that standpoint. When there are suspicions, however, of stomach involvement, they should be carefully investigated.

This has become evident as the result of Dr. Mills' work.

Dr. Graham: There was a question as to whether this might be a luetic ulcer. At the operation I removed for microscopic examination a piece of tissue from the stomach at the site of the gastroenterostomy opening. There was possibly some slight thickening of the blood vessels, but otherwise nothing definite. I neglected to mention that a portion of the omentum which was also removed for microscopic examination showed healing miliary tubercles.

8. ISCHEMIC CONTRACTURE.—By DR. NATHANIEL ALLISON.

The condition known as isehemic paralysis, Volkmann's paralysis, and Volkmann-Leser paralysis, is, properly speaking, a contracture rather than a paralysis. Though the peripheral nerves are involved, they are involved secondarily. The cause of this condition seems to be an interference for a longer or shorter period of time with the circulation. Volkmann, in his original paper written in 1881, described the con-

dition as one of ischemia. He believed that the arterial blood supply to the affected limb was checked or stopped, and that the muscle tissue in the limb died, becoming practically the same as that seen in muscles in rigor mortis. Bardenhauer later analyzes the pathological condition as one due entirely to a vascular disturbance produced by venous stasis and degeneration of the muscle fibers resulting from the retained toxic products in the muscle.

The case I have to present is one with a typical history. This young man fell from a tree and broke both bones in the forearm. A doctor was called, who applied two shingle splints to the forearm and did not again see his patient until after three weeks' time. At this time, the hand was cold and blue, the fingers could not be moved, and there were pressure sores on the side of the arm. This happened over a year ago. On entrance to the hospital, the forearm of this boy showed marked atrophy. The hand was held like a claw, without power of movement. The flexor tendons were extremely contracted, both at the wrist and in the fingers. This case is presented to emphasize the importance of proper treatment of fractures and to indicate the unfortunate results that follow improper treatment. It is presented with the hope that those of the student body who see this case will remember it when they apply splints or plaster of Paris to fractured extremities.

Isehemic contracture is usually seen in the forearm. In most of the reported cases, the fracture has been at the elbow joint; in a lesser number, the lower end of the humerus and both bones of the forearm. This contracture has followed injuries that were not treated by the application of splints. In these cases, it is to be assumed that the injury was followed by such extreme swelling that circulatory interference resulted. An important factor in the production of this contracture is the application of splints or tight dressings, or the use of positions that may affect the circulation too soon after the injury, before the maximum swelling which follows the injury has occurred. The case I now present to you shows the effect of treatment after about fifteen days. A portion of the carpus was excised to give room for wrist extension, and by the use of elastic traction the fingers have been pulled upon so that now very little of the contracture remains.

Dr. Barney Brooks has done some very convincing experimental work on this contracture, which I hope he will describe to you. To my mind, it explains the origin of this condition.

DISCUSSION.

Dr. Graham: There is one other point that I want to mention from the surgical standpoint. This is particularly to be emphasized to the students who are present. After this fracture was put up it was not seen again for about three weeks. No fracture should be left to heal itself without being seen frequently. There is no splint or other contrivance which will work automatically to prevent disasters such as the patient who has just left the room demonstrates. If marked pain is present after the fracture is reduced, it should always make one suspicious that the appliance is too tight. Fractures which are properly reduced and immobilized are not very painful unless there is serious interference with the circulation. If marked pain is present, therefore, after the reduction of a fracture, the patient should not be treated with morphine until after the splint has been loosened and the parts carefully inspected for circulation disturbances.

Dr. Warren Rainey: There is a certain clinical feature connected with isehemic paralysis to which I would like to call attention. Following the reduction and splinting of the fracture there is a persistent

throbbing pain. This pain is so severe that the patient is unable to obtain any relief except by large doses of morphine. At some indefinite time—within 12 hours or after—the pain gradually becomes relieved, as the swelling continues and the hand or foot may become bluish or purplish. The relief of the pain in this case means that the destruction has already taken place and is more like that of true paralysis. Within the period of the next three or four weeks following the primary fracture the contractures begin to develop. If the ischemic contracture is not recognized, the doctor frequently makes the mistake of trying to correct the deformity by further tightening the splints. In the case demonstrated by Dr. Allison there were two long scars on the arm which were caused by pressure of the splints. Morphine or any other narcotic should never be given for the relief of pain following the application of a plaster cast or a splint where there is swelling. This treatment is as pernicious and fraught with dangers as the administration of an opiate in the case of a questionable appendicitis. It only places the practitioner in a position of false security and permits the process of pressure and ischemic paralysis to develop unobserved.

Dr. Barney Brooks: I have been interested in the pathological changes in muscle as a result of a disturbance of their blood supply. I am convinced that these cases of Volkmann's contractures are not caused by obstruction of the arterial supply of an extremity. Obstruction of the veins is a much more important factor. Obstruction of arteries may lead to a condition of ischemia, but the characteristic feature of ischemia is rapid fatigue of muscles and not fibrosis of the muscle. In general, occlusion of arteries causes a condition of ischemia or gangrene, while occlusion of the veins causes an acute myositis and subsequent fibrosis of the muscles and contractures.

Dr. J. McH. Dean: It is my opinion that ischemic paralysis as the name implies results in muscles that are suddenly or gradually deprived of their arterial supply. This can be brought about by the injury itself which results in a severance of the artery as well as taut bandages and splints.

9. PAPILLOMA OF THE FOURTH VENTRICLE.—By DR. ERNEST SACHS.

Patient, butcher, fifty years old. Complaint, headache, dizziness, falling on walking. Past history unimportant.

Two and a half years ago began to have headache and pain in lower abdomen. One year ago, an attack of influenza. During this period his headaches were less severe. In the past two months intense headaches and unable to walk without help. Falls to either side but most frequently forward.

The positive findings in the physical examination were questionable lateral nystagmus to both sides, head held to right in cerebellar attitude, hypaesthesia of both corneae, right greater than left, eye grounds absolutely normal, no choked disc or tortuosity of the vessels, cerebellar ataxia, X-ray plate negative. Lumbar puncture showed 13 cells, ++ Pandy, negative Wassermann. The symptoms were so clearly bilateral that it seemed quite probable that the lesion lay in the median line. In view of the occupation of the patient, Dr. Schwab suggested the possibility of a cysticercus infection. The absence of nystagmus suggested that the lesion was superficial and not near the nuclei of the cerebellum. The absence of choked disc suggested that the process was growing very slowly. In view of the probable median line location of the process, the usual cross bow cerebellar exposure was not employed, but merely a median line incision made with retraction of the

muscles and removal of the occipital bone and the arches of the atlas and axis. This was done under local anesthesia and gave an excellent exposure of the fourth ventricle. On opening the dura, a white glistening tumor was seen filling the fourth ventricle. This was well encapsulated and was enucleated without much difficulty and without pain to the patient. The tumor extended up into the aqueduct of Sylvius which was greatly dilated. The only discomfort the patient complained of was pain in the abdomen and this I believed was due to irritation of the vagus nucleus in the floor of the fourth ventricle. Patient made an uneventful recovery and now is entirely free of symptoms.

10. SARCOMA, PRIMARY IN THE ISTHMUS OF A HORSESHOE KIDNEY.—By DR. W. M. A. HUDSON.

The specimen is from a white female, aged three years. There was a round cell sarcoma arising in the isthmus of a horseshoe kidney and extensively involving both halves of the kidney. Numerous metastases were seen in the heart, lung, liver and in the retroperitoneal tissue. Figures were given which showed the greater frequency of tumors occurring in horseshoe kidneys, 1 in 16.8, as compared with tumors occurring in normally formed kidneys, 1 in 186.

It was suggested that this greater frequency of tumors occurring in horseshoe kidneys together with the fact that horseshoe kidneys are formed at a very early period of intrauterine life might indicate that such tumors are a result of a disturbance of embryonic development.

11. A CASE OF LARGE TUMOR OF THE SCAPULA.—By DR. BARNEY BROOKS.

The patient was a colored male, 45 years old. The tumor was first noted five years ago. It had slowly grown to immense size. It was the cause of marked disability in the right arm. On examination the tumor was a hard, nodular tumor which had displaced the entire scapula except a small part of the bone at the glenoid cavity. The tumor was removed along with all of the scapula except the glenoid cavity. The approach was through the back. The clavicle was divided so as to expose the brachial plexus and axillary vessels. The tumor proved to be an osteochondroma. It weighed eleven pounds.

The patient two weeks after operation showed very little deformity and promised to regain almost complete function of the arm.

BARTON COUNTY MEDICAL SOCIETY

The Barton County Medical Society met in the court house in Lamar Friday, January 13, 1922, the president, Dr. Thomas F. Miller, in the chair. After some routine work, officers for 1922 were elected as follows: Dr. Albert B. Stone, of Lamar, president; Dr. John M. Brooks, Golden City, vice president; Dr. Thomas F. Miller, Lamar, secretary-treasurer.

A committee composed of Dr. Thomas F. Miller, Dr. John F. Cromley and Dr. Andrew J. Mynatt was appointed to revise the fee bill.

At one o'clock the doctors and wives went to Travelers' Inn where a fine banquet was served.

A beautiful bouquet of flowers and resolutions of sympathy were sent to Dr. John L. McComb, who has been very sick for a month.

ALBERT B. STONE, M.D.,

Secretary-Treasurer.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in Liberty, Monday evening, December 19, at the Major Hotel. The committee on program had provided an excellent bit of scientific work, hence a powerful drawing card. But, first of all, the members, their wives and sweet-hearts were invited to a banquet-dinner, as a preliminary, which doubtless lent its influence to the average member—all of us were there. A table in the elegant dining-room of the Major Hotel was laid in Christmas setting, Christmas tree, colored candles with seasonable trimming, the work of artists.

A happy group of thirty-eight souls "sat down to meat." After the invocation of divine blessing by Dr. H. Howell, the feast was on. After this delicious hour, the local committee of Liberty ladies took the visiting members' wives to a matinee, while the sterner sex went into executive session. A vote of thanks prevailed at the table, and unanimous verdict by the ladies, that the same schedule of meetings be observed next year. Upon motion it was so ordered.

The election of officers for 1922 led the program and resulted as follows: Dr. E. C. Hill of Smithville, president; Dr. E. E. Peterson of Nashua, vice president; Dr. J. J. Gaines of everywhere, secretary-treasurer; Dr. E. L. Parker, Excelsior Springs, delegate; Dr. J. H. Rothwell, Liberty, alternate; Dr. W. H. Goodson, Liberty, censor for three years, re-elected. Unanimity and harmony without blemish, prevailed.

Dr. W. J. Frick, of Kansas City, discussed "The recent Smallpox Epidemic in Kansas City." The Doctor presented statistics, the result of his careful observation, which were invaluable to those present, after which he was bombarded with questions for an hour, from which he emerged unscathed. Dr. Frick, an ex-Clay County boy, was tendered a vote of thanks and the society immediately elected him to honorary membership, drawing a touching little speech in response.

Dr. E. H. Miller read a paper on "Tonsillitis or Diphtheria?" He summoned many cases from his large experience to illustrate his subject. Pretonsillar and retropharyngeal abscesses were brought into the foreground. Symptomatology and therapeutics were emphasized and the practical value of antitoxin was dwelt upon in just Dr. Miller's way. A wonderful paper.

Dr. W. H. Goodson closed the program with an excellent talk on "Pyelitis." Like Dr. Miller, he drew much upon his experience. It was a Goodson talk. By this I mean, that we did not hear Smith's opinions, or Brown's deductions, but Goodson's. The doctor's cases were about equally divided among children and adults. He invited critical discussion on perplexing points.

Both papers were fully and entertainingly discussed. Dr. Parker, retiring president, who has never missed a meeting, closed the evening's work in a tasty little speech of appreciation to the faithful adherents and promised us a bright future. Of which, more anon.

J. J. GAINES, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held Friday, November 11, 1921, in the club rooms of the Public Library, Springfield. Twenty-five members were present. After a short business session, Dr. Ernest Sachs addressed the Society on "The Diagnosis and Treatment of Brain Tumors." The address was illustrated with specimens removed at operation and lantern slides. Dr. Sachs said that brain tumors are more common than most physicians suspect and that a carefully planned and performed operation in many instances gave re-

lief of symptoms. Discussion was opened by Dr. Glynn and Dr. Deldell. At the close of the discussion a rising vote of thanks was extended to Dr. Sachs for his kindness in giving the Society his very instructive address.

Meeting of November 25, 1921

The regular meeting of the Greene County Medical Society was held Friday, November 25, in the club rooms at the Public Library, Springfield. Thirty-five members were present, also Drs. Greene, McComb and Cole were visitors. The question of increasing the annual dues of the Society was brought up by the secretary. Motion was made and seconded that Chapter V, Sections 1 and 2 of the By-Laws be amended so that the dues be raised to \$7.00 per year. The motion carried but final action was deferred until next meeting and the secretary was instructed to notify all members in accordance with by-laws.

Dr. Goodwin, secretary of the State Association, was present and made an address on the work of the State Association, especially its activities during the sessions of the legislature. Dr. Goodwin reiterated the statement that the county societies could assist more in medical legislation by more activity in electing the right sort of men to the legislature.

The scientific program was given over to a splendid paper on "Medical Economics," by W. R. Beatie. The paper was so complete and so well received as expressing the sense of the Society that no discussion followed. Members look forward to seeing Dr. Beatie's paper printed in the JOURNAL.

Meeting of December 9, 1921

The regular meeting of the Greene County Medical Society was held Friday, December 9, at the Public Library. Forty-three members were present. It was voted that no meeting be held on next meeting night, December 23, on account of the Christmas holidays. After reports of interesting cases by Drs. Pipkin, Russell and others, the meeting passed to the election of officers. The results were as follows:

President, M. C. Stone; vice president, W. R. Beatie; secretary, Robt. Glynn (re-elected); treasurer, W. E. Handley (re-elected); delegate, J. W. Love; alternate, Harold Bailey; censor, 3 years, W. P. Patterson (re-elected).

Adjourned to meet January 13, 1922.

ROBERT GLYNN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its 30th regular meeting for the year 1921, Tuesday evening, December 6, at the Joplin Y. M. C. A., the president, Dr. S. A. Grantham, in the chair. The minutes of the last meeting were read and approved.

Dr. H. E. Pearse, of Kansas City, read an extremely interesting paper on "Some Tumors of the Neck, Including Congenital Cysts, Carbuncles and Malignant Tumors." The etiology, diagnostic features, and operative technique were described in detail and illustrated with lantern slides. Several interesting cases which Dr. Pearse had operated on were given under case reports. The paper was discussed by Drs. Grantham, Barson, L. C. Chenoweth and Williams. Attendance 67.

31st Meeting, December 13, 1921

The 31st regular meeting of the Jasper County Medical Society for the year 1921 was held Tuesday evening, December 13, 1921, at the Joplin Y. M. C. A., Dr. Grantham in the chair.

The following officers were elected to serve in 1922: President, Dr. H. A. Leaming; vice-president, Dr.

R. M. Stormont; secretary, Dr. Jas. I. Tyree; treasurer, Dr. M. C. Shelton; delegate, Dr. R. M. James; alternate, Dr. S. A. Grantham; censor, three years, Dr. W. H. Mallory; censor, one year, Dr. E. D. James.

The Society voted to hold the annual banquet the first Tuesday in January.

Attendance 26.

JAMES I. TYREE, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

Thirty-second Meeting, December 20, 1921

The thirty-second meeting of the Jasper County Medical Society for the year 1921 was held Tuesday evening, December 20, at the Joplin Y. M. C. A. In the absence of the president, Dr. J. D. Pifer presided. Members present were: Doctors Snyder, Harutun, J. W. Clark, E. D. James, Morgan, Gregg, Stormont, Neff, Korn, Dickerson, Alberty, Barson, Pifer, Williams, Mallory, L. C. Chenoweth, S. H. Miller, J. A. Chenoweth, Balsley, Tyree.

Dr. Alberty reported a case of pellagra and Dr. L. C. Chenoweth reported a case of intestinal obstruction. Autopsy on the latter case showed the obstruction to be due to an abscessed tube and ovary. Dr. Harutun, the health commissioner, reviewed the work of the health department for the past year and stated that there had been reported during the year 156 cases of measles, 17 smallpox, 47 diphtheria, 28 scarlet fever, 30 typhoid, 2 influenza. After this the meeting adjourned.

First Meeting, January 3, 1922

The first meeting of 1922 of the Jasper County Medical Society was held Tuesday evening, January 3. Following a banquet served in one of Bennett's banquet rooms, an interesting program was carried out which included, among other things, several very laughable impersonations of different members of the Society. The attendance was 74.

Second Meeting, January 10, 1922

The second meeting of the Jasper County Medical Society for the year 1922 was held Tuesday evening, January 10, at St. John's Hospital, the president, Dr. Leaming, in the chair.

Several interesting cases were presented. Dr. J. B. Williams presented a case of pernicious anemia which had received three transfusions with good results. Dr. E. E. Moody presented a case of congenital stenosis of the pylorus which had been cured by operation. Dr. Tyree read the case report of a patient who had been jaundiced for forty days previous to death. Bile had never been recovered on flushing the duodenum through a duodenal tube with magnesium sulphate. The jaundice had remained constant throughout but there had been no other sign or symptom until one week before death when patient was delirious for twenty-four hours. Delirium cleared up and two days later patient became unconscious, had light convulsions, involuntary bowel movements and vomiting, developed a temperature of 103 degrees and died in three days. There had been no history of infection or lues. X-ray report stated that there were three gall-stones, but in view of no further findings relative to gall-stones, operation was advised against. Autopsy showed everything normal except the liver which weighed 500 grams, one-third normal, capsule not wrinkled, yellowish red in color, rather flabby, cuts with a slight amount of resistance, cut surface yellow, lobules not well marked, no gall-stones, gall-

bladder and ducts normal. Pathological report: acute infectious cirrhosis.

The total attendance was twenty-five.

JAMES I. TYREE, M.D., Secretary.

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met in regular session in Lancaster, December 20, 1921, and was called to order by the president, Dr. W. F. Justice, at 2 p. m. The following were present: Drs. W. F. Justice, J. H. Keller, A. J. Drake, J. O. Coffey, Jr., and J. B. Bridges. The minutes of the last meeting were read and approved.

The secretary-treasurer made a statement of the society's finances showing a balance of \$8.18 in the treasury. On motion the report was adopted.

A committee consisting of Drs. J. O. Coffey, Jr., A. J. Drake, and J. B. Bridges was appointed to draft resolutions on the death of Dr. B. B. Potter and they reported as follows, which was adopted:

Resolutions of Respect, in Memory of Dr. Byron B. Potter

"Leaves have their time to fall and the flowers wither before the cold wint'ry blasts, but, thou, Oh Death, hast all seasons for thine own."

WHEREAS, once again death has entered the home of one of our members and taken him to his reward.

We bear willing testimony to the sterling integrity and many virtues of Dr. B. B. Potter, to his devotion to his family, his country and our society, and commend his example as one worthy of emulation, therefore be it

RESOLVED, That in the death of Dr. Potter his family has lost a true and devoted father and husband, this society a faithful and zealous member and the community an honored and upright citizen.

RESOLVED, That a page of our records be dedicated to his memory and a copy of these resolutions be furnished the family.

J. O. COFFEY, JR., M.D.,
A. J. DRAKE, M.D.,
J. B. BRIDGES, M.D.,

Committee.

Dr. J. O. Coffey, Jr., read a paper on "Phlegmonous Gastritis," which was well received by the society and discussed. It is a very interesting condition and its occurrence very rare.

The following were elected officers for 1922: President, Dr. J. O. Coffey, Jr.; vice-president, Dr. A. J. Drake; secretary-treasurer, Dr. J. B. Bridges; delegate to state meeting, Dr. A. J. Drake; alternate, Dr. J. H. Keller.

The Society adjourned to meet May 3, 1922.

J. B. BRIDGES, M.D., Secretary.

VERNON COUNTY MEDICAL SOCIETY

The Vernon County Medical Society met in Nevada, Friday, December 2, 1921, the president, Dr. T. McLeomore in the chair. The first order of business was the election of officers for the year of 1922, and the following were elected:

President, Dr. G. C. Willson; vice-president, Dr. L. H. Callaway; secretary, Dr. J. T. Hornback; delegate, Dr. G. S. Walker.

After the election, Dr. Frank C. Neff of Kansas City, presented the most important subject that was ever brought before the society, "Vaccination for the Prevention of Diphtheria." The following are some of his remarks:

Give toxin-antitoxin to all children under 18 months old. Give the Schick test to all children over 18 months old. Under one year use half dose of toxin-

antitoxin mixture. Most children under 6 months are immune if their mothers were immunized. After toxin-antitoxin treatment immunity in 4 months is about 70 per cent.; in 9 to 10 months, 91 per cent., and in 22 months all are immune.

The society dues were fixed at \$2.00 for 1922, the state dues being \$5.00, making total dues of \$7.00.

The following were present: Drs. Frank C. Neff, of Kansas City; Jno. S. Newton of Butler; Wm. T. Allen of Rich Hill; Wm. H. Popplewell of Sheldon; Geo. S. Walker of Harwood; E. H. Liston of Harwood; I. W. Amerman, Wm. T. Bohannon, L. H. Callaway, E. A. Dulin, T. B. M. Craig, Q. M. Brown, E. A. Heibner, Wm. G. Freiday, Geo. C. Willson, Jos. M. Yater and Jos. T. Hornback of Nevada, Dr. Dills of the dental profession and about 75 visitors.

Fifteen clinical cases were presented.

J. T. HORNBACK, M.D., Secretary.

BOOK REVIEWS

MODERN ITALIAN SURGERY. And Old Universities of Italy. By Paolo De Vecchi, M.D., Fellow American College of Surgeons, Corresponding Member of the Royal Academy of Medicine, Turin, Italy. Foreword by George D. Stewart, M.D., President New York Academy of Medicine. With Fifteen Full Page Illustrations. New York: Paul B. Hoeber, 1921. Price, \$5.00.

It is an indisputable fact that our knowledge of Italian medicine as it obtains today and for that matter as it obtained some fifty years ago is a very much neglected chapter in our education which needs the attention of a keen and cagacious instructor who shall lead us into those paths where the greatest light will be shed on this subject. Such an instructor is Dr. De Vecchi and a careful and wise instructor he is albeit with a decided leaning toward Italian medicine which in his case and in this instance is just the procedure that is needed, for too long have we cold-shouldered modern Italian medicine; and, even when we gave it a thought, have more or less disparagingly spoken and written of it. Therefore, the enthusiasm of the author is justifiable, and what with a pen that writes clearly and intelligently on the subject a picture of Italian medicine is unfolded that carries fascinations of great value, and must move even the most obdurate and indifferent reader to a just appreciation of some of the values contained in Italian medicine today. Medical men who have given considerable time and attention to medical history, know the names of Fabricius, Falloppio, Vesalius, and a few others, but this does not mean that they are versed in the enormous strides made by Italian medicine in the nineteenth century. Nor would they know anything of the modern hospitals which have been built, not only in the larger Italian towns but also in the smaller. The Great War made plain to some American physicians who were in service abroad that Italy was no laggard, but even these were not sufficiently affected by their recently acquired knowledge to spread the right sort of news among their unenlightened friends upon their return to this country—to be the harbingers of a neglected but an important chapter in our education.

It has remained for an Italian by birth but an American by education and long residence in this country to be the torch-bearer; and prompted by a willingness to instruct no matter how lackadaisical the audience, he marches us triumphantly through

Italy—from large town to large town, from small town to small town, describes hospitals and the work done therein, the universities in detail, the men who have made the science of medicine an emblem of high worth on account of great and lasting discoveries and on account of unremitting endeavor without which the science of medicine never achieves enviable ends. After reading De Vecchi's "Modern Italian Surgery" the reader will no longer think of Italy as one of the playgrounds of Europe for the dilettante in art and archeology, or only the proper place for the serious prosecution of art, but as one of the great centers for a post-graduate course that shall yield him benefits which cannot be acquired elsewhere.

DISEASES OF THE SKIN: By Henry W. Stelwagon, M.D. Ninth edition revised with the assistance of Henry K. Gaskill, M.D., Attending Dermatologist to the Philadelphia General Hospital. 1313 pages with 401 text illustrations and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$10.00 net.

The revision of Stelwagon's well-known text on dermatology was undertaken by the author during the year just preceding his lamented death. The extensive labor involved led him to place much of the burden upon Dr. H. K. Gaskill, who had assisted him in previous revisions, and Dr. Gaskill has ably carried out the plan of the author.

Stelwagon's text has for over eighteen years been so extensively and favorably known to the profession that it is unnecessary to review its many points of excellence. Many parts of the book show alterations due both to elimination of obsolete matter and the incorporation of the results of the newer studies. The fact that elimination has not been as extensive as it might have been will retain for the book its reputation as being our best key to the earliest literature on dermatology. Most, though not all, of the newer discoveries that are still *sub judice* will be found mentioned in this edition. The illustrations have been added to and improved, and the Stelwagon-Gaskill text will continue to occupy a unique and valuable place in American medical literature.

N. T.

THE PRACTICAL MEDICINE SERIES. Comprising eight volumes on the year's progress in medicine and surgery. Under the general editorial charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis, Northwestern University Medical School. Volume 3, "The Eye, Ear, Nose and Throat," edited by Casey A. Wood, C.M., M.D., D.C.L. Albert H. Andrews, M.D., George E. Shambaugh, M.D. Series 1921. Chicago: Year's Book Publishing Co. 392 pages.

The ear, nose and throat section of Volume 3 of this series aims to classify and abstract selected articles published in the oto-rhino-laryngological literature during the year 1921 in such a way as to bring before the reader a logical sequence of discussion of these diseases in reference to their cause, diagnosis, and treatment. The choice of the abstracts in many instances is a happy one and represents a painstaking effort to select subject matter that is not only concise, but broad enough to give a comprehensive review of the latest work being done in this field.

The busy practitioner who may desire to know the present status of work in this field need only turn to these pages and in a systematized, logical order he will find not only a subject matter that is instructive, but expressions of some of the best work that the year 1921 offered.

I. D. K.

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COMMITTEE { S. P. CHILD, M. D.
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ORIGINAL ARTICLES

ARE WE GIVING OUR PARTURIENT WOMEN A SQUARE DEAL*

F. T. VAN EMAN, M.D.

KANSAS CITY, MO.

Within the last few months several articles have appeared in medical literature which should make us pause and take an inventory of what we are doing for our expectant mothers and especially what we are not doing for them. According to Polak, of Brooklyn, Rudolph Holmes, of Chicago, and Somers, of Omaha, maternal mortality has not diminished. In fact, it has shown an increase, and the two latter writers have taken a very definite stand against the growing tendency for interference with nature in favor of Cesarean section, early induction of labor by bag and prophylactic forceps with episiotomy a la De Lee.

If these gentlemen are correct, then prenatal care means nothing except in so far as it guards our patients against the various toxemias of pregnancy in the minor and major degrees, together with the sharp lookout for Neisserian and luetic infection. In support of their statements statistics are quoted.

Someone has said that there are three kinds of lies: first, just plain lies; second, damn lies; third, statistics.

I do not place much if any confidence in obstetrical statistics. In the first place, the registration area of the United States is by no means complete. Again, the great majority of major surgical operations are done in hospitals, in most of which the reports are available for statistical purposes and therefore rather definite conclusions may be reached; but the vast majority of obstetrical cases are delivered in the home from which no records come—unless it is a death certificate. I am inclined to the opinion that typhoid or other disease is not

given as the cause of death in cases which were really puerperal infection, as often as in times gone by. The doctors are wiser and laity also. This may possibly to some extent explain the statements regarding maternal mortality.

Again, when we undertake to compare present conditions with those of 20 or 30 years ago, from a statistical standpoint, we must remember that at that time there were practically no statistics for comparison, for, with the exception of a very few in the largest cities, there were no maternity hospitals; in fact, almost no maternity departments in the general hospitals, so that we knew only what our recognized text books taught us regarding the mortality of this or that condition, and this was usually handed down from one text book to another.

The obstetric specialist is a new thing comparatively speaking but the number is growing; prenatal care is becoming recognized as the woman's right by the women themselves as well as by the profession, and with all this it would be hard to believe that the lot of our pregnant and parturient woman is not being bettered and the chances of the expectant child much improved.

I believe we can safely say this: that maternal mortality and morbidity have decreased to the greatest extent, first, in exclusive maternity hospitals; next, in maternity departments in general hospitals; and least or perhaps not at all in the homes. In support of my statement as to a maternity department in a general hospital, I wish to state that during my service in Wesley Hospital, 700 women (in round numbers) were delivered. With the exception of a few eclamptic cases, brought in moribund and living but a few hours, and a number of cases complicated by a influenza-pneumonia, we lost but two cases of infection. In one an unwisely advised Cesarean section was done. In the other, the case had been in labor 3 or 4 days, numerous attempts had been made to deliver her in her home, all of which failing

*Read before Jackson County Medical Society, January 10, 1922.

she was brought into the hospital already infected and with a dead baby. A craniotomy enabled us to make the delivery but the mother died in due time of a real infection.

Our general fetal mortality was about 4 per cent., which came well within the range of all maternity institutions.

It will be recalled that I used the terms maternal mortality and morbidity. In our desire and anxiety to escape a "mortality" I think we have lost sight of a very important thing and that is maternal morbidity. Every gynecologist will tell you that the great majority of his cases date all their troubles back to childbirth, and usually to the first.

There are some things almost worse than death and one of them is to leave a woman injured and crippled beyond the hope of repair, a patient changed from a healthy young woman to a chronic invalid all her life.

I do not mean to say that women so injured are confined to a class who are delivered by other than obstetricians, for in some cases delivery by the natural channel can only be made with great and crippling injury in any man's hands, and this at once brings me to the question of Cesarean section, to which the writers referred to enter such strenuous objection on a sort of "fools rush in where angels fear to tread" basis.

I am perfectly free to admit that there are probably many Cesarean sections done where the indications were not clear or where the contra-indications have not been carefully and wisely considered, as in the case mentioned at Wesley Hospital, but I am equally certain that a much greater number of women have been delivered by the natural channel who should have, at the proper time, been delivered by a section. And at what expense? Injury often beyond the hope of a successful repair, not to speak of the loss oftentimes of her baby, which is no small matter either to the mother or the state.

We are told of one surgeon in the North who claimed to have done sixty Cesarean sections for eclampsia within a relatively short time. We feel that either he is an awful liar or that he calls every toxemia an eclampsia and proceeds to operate forthwith and regardless. This man may take the same pride in his sections for eclampsias as did the old-time Westerner in the notches on his trusty weapon, but we do not feel this way about it.

To Cesareanize every eclamptic is absurd practice and bad judgment, but there can be no doubt that there are certain cases when the interests of both mother and child are best conserved by a section. In elderly primiparae when the desire for a child is strong

and the possibility for another pregnancy rather remote, or where there is a strong reason for an heir, a section may be indicated in the interests of the child; but, with these exceptions, the operation should always be done in the interests of the mother.

In an eclamptic primipara with a rigid cervix that promises long delay in dilatation and effacement, and in whom the convulsions are occurring with increasing frequency and severity, a prompt Cesarean section undoubtedly offers the greatest degree of security and the least injury.

In cases where the cervix is soft and easily dilatable and the convulsions under control, or nearly so, a Vorhees bag will usually bring a prompt response and the delivery may be made in a reasonable time. However, even in these cases we often meet with difficulty in the way of malpositions that are difficult or impossible to correct, thus making a version necessary; and when we sum up our results we find our patient far more injured than she would have been had a section been done. In fact, I am about convinced that an eclamptic primipara who is not in a labor which is progressing rapidly and satisfactorily will, if she recovers from her toxemia, be left in far better shape when delivered by section rather than through the natural channel by a more or less forced delivery.

Multiparae present a much easier problem and the delivery can nearly always be accomplished without resorting to radical methods.

As a substitute for a high forceps operation in persistent failure of the fetal head to engage, a Cesarean is the operation of choice, and in cases of placenta praevia (especially of the central type), abruptio-placentae, pelvic malformations and marked overgrowth of the fetus, this same operation has a definite place and the indications are usually very clear.

In eclampsia the vaginal Cesarean section has some advocates but we must remember that with this operation done we still have the rigid parts to deal with at the pelvic outlet and we may be adding insult to injury. For this reason I believe this method has no place in our treatment of eclampsia.

One hazard every Cesareanized woman who is not sterilized at the same time must accept, and that is the possibility of a repetition of the operation in the next pregnancy, or even a rupture of the uterus.

While Rudolph Holmes' dictum, "once a Cesarean always a Cesarean," is by no means always true, yet we cannot deny the possibility. I believe any woman who has gone through a second Cesarean is entitled to a sterilization by removal of her tubes and I always advise this procedure.

Efforts to hold in check the size and weight of the rapidly growing fetus have been made for many years and it requires no second thought to know that if all babies could be kept around 6 to 7 pounds in weight, our mothers would have easier labors and many babies that are otherwise lost in delivery would be saved. Special diets are not productive of very satisfactory results. Charles B. Reed, of Chicago, has attacked this subject boldly and when at or near term the fetal measurements are those of maturity he induces labor by castor oil and quinine or by a Vorhees bag, regardless of the date which would have ordinarily been 280 days from the first day of the last menstruation. I have done quite a little work along this line and have as yet had no cause to regret what might seem going contrary to nature. I have seen a number of disasters due to the patient going over her time and I certainly think we should watch these cases more carefully.

Some time ago Stein of New York published in the *Journal of the American Medical Association* the results of his investigations of over 5,000 children, inmates of homes for epileptics, mental defectives and imbeciles, whose birth records had been carefully investigated. He found that in a very large percentage there was a history of long, tedious, spontaneous labors, and concluded that the condition of many of these children was due to the long continued cerebral pressure attending a labor of this character. This is one of De Lee's arguments for his so-called "prophylactic forceps" operations. De Lee simply waits for complete dilatation, effacement and retraction of the cervix, anesthetizes his patient, does a medico-lateral episiotomy and then applies forceps and delivers, after which he closes the episiotomy wound.

I have done this repeatedly and feel that I have saved my baby a possible injury, and my mother several hours of intense suffering and exhaustion, thus insuring a much smoother convalescence.

I have purposely kept for the last consideration in this paper what I feel is the most important, and that is the reason why so large a percentage of our pregnant women, also parturients, are not receiving the care to which they are so justly entitled, and why it is that the mortality, outside of the hospitalized cases, has not diminished; has, in fact, according to some authorities, really increased. I have given this subject a great deal of thought and I have come to the conclusion that outside of the prevailing low and inadequate compensation most men receive for obstetric work, the real reason is, that we have always been taught

to consider pregnancy and labor as a normal and physiological process.

A woman riding horseback astride is thrown against the pommel of her saddle and her genitals are bruised and cut and there is bleeding. A little girl falls astride a fence and with the same results, or she is kicked by a playmate. All this is pathology. A pregnant woman is like one walking across a narrow plank with a deep ravine on each side, one slight mis-step and over she goes, and yet it is physiological.

At the birth of the child the genital canal is practically always injured to some extent, greater or less abrasions occur, the absorption from which often gives us a little temperature and other constitutional disturbances. The many mouths of uterine blood vessels and lymphatics are left open to infection from a vagina that can never be made surgically clean. There is quite a blood loss and most women upon getting up at the end of the usual ten-day period certainly look as if they had been through somewhat of an ordeal, and we call this physiological.

There is no one within reach of my voice but can sit down and write an intelligent description of an acute appendicitis together with the technic of the operation for it, even if he does no surgery, but I doubt if there are many who have been out of college for a year or so who can sit down and off-hand write a description of the mechanism of a normal labor, beginning with lightening and ending with the expulsion of the placenta—to say nothing of the mechanism of abnormal cases.

How many of us remember why an occipito-posterior position makes a long and tedious labor, and if there is failure in anterior rotation of the occiput, why it is so difficult and often impossible to bring the head through in this position with forceps?

Why? Simply because labor, being considered a normal and physiological process, we promptly forget what we all learned so well in order to pass our examination in obstetrics and proceed to devote our attention to those patients whom we consider really sick.

Now, no matter what pregnancy and labor may have been in the remote past, today it is a pathological process, generally speaking, and the sooner we take this view and give our patients the same unremitting thought and attention, which we give our typhoid, our pneumonia, our gall-bladder and appendicitis cases, using the knowledge we all gained in the beginning, the sooner will maternal mortality and morbidity decrease and the sooner will our patients get a square deal and a better show for their "white alley."

REVIEW OF THE LITERATURE OF HEMORRHAGIC DISEASES OF THE NEWBORN*

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The occurrence of hemorrhages from various parts of the body is not uncommon in infants at or soon after birth. According to Graham,² the insufficient knowledge of the causes that underlie the hemorrhagic diseases, makes it impossible to classify them with any satisfaction. For the most part at present they are classified upon clinical and morbid anatomical differences: occasionally heredity and epidemicity have been recognized. Therefore, a confused state of the literature prevails.

Bleeding in newborn infants evolves itself into three composite groups: (a) Traumatic cases, i. e., precipitate labors, prolonged labor and instrumental and manual labors; (b) Symptomatic cases, i. e., purpura, infections (pyemia or toxemia), and (c) Spontaneous hemorrhagic diseases of the newborn.

This is the disease in which we are particularly interested, a disease of unknown etiology which occurs in apparently healthy infants. The important thing is, whatever the cause may be, it acts only for a short time, so that energetic treatment is of importance.

Looking back into the history of the condition, Vogel¹ at the University of Dorpat, Russia, in 1890, describes a hemorrhage from the navel just as the cord had fallen off, but before complete cicatrization took place. He considered it a rare disease occurring once in 10,000 newborn children. He also regarded a hemorrhage of the navel as probably the first indication of a hemorrhagic diathesis and blood dyscrasia.

Most all the other writers of this early period ascribed asphyxia, prolonged labor, general plethora, congestion of the mesenteric arteries, respiratory embarrassment and vascular thrombosis as a possible cause of the hemorrhage, and they were about as wild as Grandicler who, in 1871, considered that persistence of the ductus arteriosus and the foramen ovale were factors in the occurrence of umbilical hemorrhage. The frequency varies with the experience of different observers. According to Silverman,⁴ 37 hemorrhage cases to 29,333 births; Kling, 17 cases to 12 or 13,000 births. Hewgott, 2 cases in 3,000 births, etc.

Symptoms.—In this type of hemorrhagic disease that we are considering, there is a spontaneous capillary oozing, which begins at a variable period after birth and may prove rapidly fatal, or it may last for a few days to a few weeks and yet end in recovery. The

bleeding takes place from the umbilicus; the mucous membrane of nose, mouth, stomach, intestine; from the genito-urinary organs; from any abrasion of the skin, or subcutaneously, and even through the skin of the palms and soles. The so-called internal hemorrhage may occur into any of the viscera—thymus, lungs, kidney, adrenals—into the serous cavities and intracranially; the latter is probably one of the most frequent sites.

The other symptoms are secondary to the amount of blood lost and the causes. First, there is a refusal of food. Fever may be present or not. There are occasionally attacks of cyanosis or at least a changed sighing type of respiration. The infant usually looks desperately ill, with a drawn facial expression. The symptoms as a rule start 12 to 36 hours after birth. They may begin in 6 hours or may be delayed to the 6th day, or even as late as the 6th week. However, very few cases begin after the first week.

Icterus is a common condition at this time of infant life, and can bear no important role in the disease according to Whipple.³ The essayist personally thinks that it is one more link in the chain of evidence when one is trying to decide whether the infant is having a so-called internal spontaneous hemorrhage, or whether he has some disease process. The icterus due to hemorrhage in our experience, has a different appearance from the ordinary icterus neonatorum. It is a yellow of lighter hue, yet it is more deeply set into the skin and mucous membrane. It gives the patients a truly sick appearance.

Etiology.—1. During the early periods, the cause was ascribed to asphyxia, prolonged labor, general plethora, congestion of the mesenteric arteries, respiratory embarrassment, vascular thrombosis, rupture of blood vessels, irritation due to swallowed amniotic fluid, too early ligation of the umbilical cord. Later, the occurrence of malena was explained by some observers on the basis of inflammation of the gastro-intestinal tract, while others thought it was due to ulcers and erosions.

2. Still later hemophilia neonatorum was used as a generic term, but in most instances hemophilia is not manifest in the newborn. Cautley¹⁶ in his textbook (1910 edition) thinks the affection is not due to hemophilia, for these cases rarely bleed before the end of the first year, and infants who recover from hemorrhagic diseases do not subsequently prove bleeders.

3. Bacterial infection as a cause was shown by epidemics of hemorrhages of the newborn in institutions, and is in reality another type of disease than we are considering, but it has a common symptom, bleeding. Finkelstein¹²

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divides these infections into two groups: (1) pyogenic organisms, (2) specific hemorrhagic producing organisms.

4. Syphilis as an etiology. Newman, Peterson, Finkelstein,¹² and many others have found such a large variety of secondary organisms in the congenital syphilitics showing bleeding, that they have concluded the congenital syphilis alone do not produce hemorrhage. According to Schloss,⁴ the main objections to congenital syphilis as a cause of hemorrhage are 1st, most observers are unable to demonstrate vascular changes in syphilitic infants; 2nd, herido-syphilis predisposes to bacterial infection; 3rd, bacteria have been found in bleeding hereditary syphilis.

5. Among the traumatic causes are included cerebral injury, cephalic hematoma, and ulceration and perhaps at least irritation of the gastro-intestinal mucosa from drastic catharsis causing bleeding, or more frequently perhaps, hemorrhages may come from the congested membrane of the gastro-intestinal tract in consequence of its sudden functional activity.

6. The last view as to the cause of spontaneous hemorrhagic disease of the newborn was brought out by experimental data and after the above possible causes were found wanting. Among the first is Lambert's theory¹⁰ that this condition is a primary blood defect, and he feels that a careful study of the organs and tissues of such a case might give some hint as to the site of production of the missing element. It is a common observation that the blood remains fluid hours after death. According to Finkelstein, the main characteristics of the hemorrhagic disease of the newborn are uncontrollable hemorrhages, and a loss or delay of blood coagulation.

Lequeux¹¹ states that in these cases the clotting of the blood is retarded, and the contraction of the clot is slow and often incomplete, though not absent. Duke⁸ finds that blood clots slowly when the platelet count is low, but usually the platelet destruction is due to an infection, and this rules it out as a possible cause of a truly spontaneous hemorrhage.

Schwartz and Ottenberg⁷ have recently called attention to impaired blood coagulation as the immediate cause of uncontrollable hemorrhage in the newborn. From their experiments they consider that the impaired coagulability is probably due to a destruction of, or an interference with the production of thrombokinase. This substance is poured out when the vessel wall or the body tissues are traumatized. Morowitz⁶ believes that there is a lack of an enzyme kinase or thrombokinase. Whipple³ gives us the most complete experi-

mental data, and while it is on but one case making it dangerous to draw very definite conclusions, he nevertheless has opened the way for future work. He found no evidence of congenital abnormalities and was able to rule out syphilis, bacterial infection and trauma by histological study. With biochemical experiments he was able to show an absence of prothrombin, but he was unable to show why prothrombin was absent.

The most recent reference in the German literature as to the etiology of this condition is by A. Ylppo⁵ who brings out the idea that the jaundice and the increased amount of bile in the circulation of the newborn infant is in his opinion the cause of the delay in the blood coagulability. Also King and Stewart⁹ explain slow coagulation in cases of jaundice as due to a union of calcium and bile pigments, with decrease of free calcium.

Ylppo⁵ also mentions Whipple's work in this manner: "Whipple found that in infants who suffered from these hemorrhages, there was a lack of prothrombin the first step to thrombin which is absolutely necessary for normal coagulation. In this he calls attention to the fact that in the blood itself is to be found the cause of these hemorrhages." The absence of prothrombin seems to be the soundest basis for the etiology of this condition. The mortality, according to Schloss and Commisky⁴ ranges from 35 to 87 per cent.

Treatment.—1. Originally these hemorrhages were treated locally.

2. Later in this country calcium salts were used, but the results were disappointing. About this time in Europe, gelatine was used both internally and locally, and of course without results.

3. Following the publications of Weil, animal sera came into general use. In 1908 Lambert¹⁰ reported a cure of a case of hemorrhage from the use of human blood or its derivatives. Schloss⁴ used whole blood injected subcutaneously with good results. The value of this theory may be explained in the following way:

(1) The introduction of whole blood supplies one or all of the substances necessary to produce coagulation.

(2) Whole blood stimulates the blood-forming organs to supply the substance which is lacking and causing the bleeding. Cooley¹⁴ advances this theory.

(3) Blood neutralizes autithrombin or other toxic substances which are inhibiting coagulation.

(4) Blood has an action on damaged cells of the vessel wall. This is believed by Welch.¹⁵

(5) Blood serum neutralizes toxins which are damaging the vessel walls.

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BIBLIOGRAPHY

1. Vogcl: Textbook Diseases of Children, 1899 Edition.
2. Graham: Pathogenesis of the Hemorrhagic Diseases of the New-Born. *Jr. Exp. Med.*, Vol. 15, page 307, 1912.
3. Whipple: Hemorrhagic Disease, Septuaginta Melena Neonatorum, and Hepatic Cirrhosis. *Archives of Int. Med.*, Vol. 9, page 365, 1912.
4. Schloss and Comminsky: Spontaneous Hemorrhage in the New-Born. *Am. Jr. Diseases*, chr. I, page 276, April, 1911.
5. A. Ylppo: Hamorrhagien, dunne Stuhle und Krampfe als Symptome Atiologisch verschiedener Krankheiten der Neugeborenen. *Zeitschrift für Kinderheilkunde, Originalien*, Vol. XVI, September, 1917.
6. Morowitz, P.: Handbuch d. Biochemischen Arbeitsmethoden. E. Alderhalden, Vol. V, page 223, 1911.
7. Schwartz and Ottenburg: The Hemorrhagic Disease of the New-Born with Special Reference to Blood Coagulation and Serum Treatment. *Am. Jour. Med. Sci.*, Vol. CXL, page 17, 1910.
8. Duke, W. W.: The Relation of Blood Platelets to Hemorrhagic Disease. *Jour. Am. Med. Assn.*, page 1185, 1910.
9. King, J. K. and Stewart, H. A.: *Journal Expr. Med.*, Vol. XI, page 673, 1909.
10. Lambert: Melena Neonatorum with Report of Case Cured by Transfusion. *Med. Rec.*, Vol. LXXIII, page 885, 1908.
11. Luqueux: Etiology et Pathogenic des hemorrhagies du nouveau-né. *Paris Thesis*, 1906.
12. Finkelstein: Quoted by Schloss (see note 4).
- 13.
14. Cooley: The Treatment of Hemorrhagic Disorders. *Jour. Am. Med. Assn.*, Vol. LXI, page 1277.
15. Welch, J. F.: *Am. Jour. Med. Sci.*, Vol. CXXXIX, page 180, 1910.
16. Cautley: Diseases of Children, 1910 Edition.

DISCUSSION.

Dr. E. H. Schorer, Kansas City: Without any doubt we are losing too many children in the first few days of life—not all due to this disturbance. Any study that will help us in eliminating, or at least decreasing, the number of infants lost in the first few days, is of the greatest importance.

The method Dr. Walthall indicated here in this particular condition, of course, I think, is the one most frequently used now, and is the most satisfactory.

Dr. John Zahorsky, St. Louis: I wish to add my testimony to the Doctor's method of treating these cases—the subcutaneous injection of fresh blood. At the same time, I always draw five or six ounces from the donor and put it in a sterile vessel covered, in the refrigerator, and let some of the serum separate and give in the subsequent dose five to twenty c.c. of this serum. I think it is essential for complete success.

We have a great many of these cases not recognized in the form of cerebral hemorrhage. We need a test as soon as the baby is born to see if its blood coagulates properly. It is the custom to inject blood in cerebral hemorrhage when there is no evidence of the injury. Many cases of hemorrhage with permanent disability are due to this peculiar disease, so I think a subcutaneous or intramuscular injection of fresh blood and injections of serum are generally indicated.

Dr. Damon Walthall: In regard to Dr. Saunders' question we have always obtained blood from some member of the immediate family, as father or mother, and we have not typed the blood thus obtained, especially when it is to be used subcutaneously or intramuscularly. In other words, we have taken a chance. However, when the blood is to be used intravenously or taken from a donor other than some member of the family, we have typed the blood.

Another interesting thing about our work is that we have practically always used whole blood without citrating it for subcutaneous and intramuscular injections. However, for intravenous administration it will be necessary to use a citrate to prevent coagulation. It must be remembered that too great a concentration of the citrate will cause an injury to recipi-

ent's blood. The longitudinal sinus is the route of choice for intravenous administration during infancy.

In closing, I wish to emphasize the purpose of the paper in reviewing this literature was the hope of finding some early symptom or sign by which we could recognize early these cases of spontaneous hemorrhage which are obscure and unable to be recognized until they are beyond help by whole blood or blood serum therapy. It may be advisable to give routinely whole blood or blood serum in many of these new-born cases.

GONORRHEA IN WOMEN*

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In outlining a short study of this subject, so important to the general practitioner and gynecologist as well, we are impressed with its many phases. Its arthritides, endocarditis, and other metastases, we will not touch, but confine ourselves to the lesions incident to women alone. The histology and pathology of the parts involved, the very necessary bacteriology, the effects of menstruation, pregnancy and parturition, diagnosis and treatment, medical and surgical, make an extensive but most interesting study.

Though gonococci may attack and gain fast hold on even the epidermis, certain tissues and organs are the ones which are most susceptible and these attract our study. When the vulva, vagina and bladder are involved it is because of the patient's low resistance, the virulence of the infection, or the irritating effect of the overflowing pus and secretions. It is because these parts are covered with squamous epithelium, and squamous epithelium is not a good culture area for gonococci, but the columnar epithelium of the urethra, the glands of Skene and Bartholin, and of the cervix, the ciliated columnar of the tubes are good pasture and are the chronic abode of the gonococci.

When a patient presents herself for examination a routine of procedure is best carried out. When we recognize the fact that each or all of the above-mentioned parts may be infected, and that each of these may be of indefinitely prolonged infectiousness, we will see that each must be separately attacked and cured. The gynecologist who has neatly and conservatively done his salpingectomy, or whatever else, has not finished his work until these lesser fires are extinguished. The patient is placed in lithotomy position, with hips slightly elevated on pad so that the handle of the speculum does not touch the table, and the examiner is seated, supplied with the following: dressing forceps, three or four plat-

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inum loops, or one and a convenient flame, pledgets of cotton, and Simms' speculum of appropriate size, with antiseptics and dressings of choice. An inspection of the surrounding skin is made, noting excoriations, condylomata acuminata (venereal warts), the common papillary response to the irritating discharge of chronic gonorrhea. The warts are covered with saturated bichloride collodion, snipped with scissors, curetted, and especially kept dry with some antiseptic drying powder; the labia separated, the vulva cleaned with dry cotton pledgets; the urethra is closely inspected, a smear made, noting warts or everted meati of Skene's glands if infected, showing as reddened everted punctae from which pus can be squeezed. Smears made from these if they appear suspicious. A small pledget in the dressing forceps is pushed into the vagina under the urethra, repeatedly drawn forward to milk the pus which probably did not show at the first inspection. (The use of the forceps in this manner saves soiling the fingers.) Along the edges of the introitus, reddened areas are looked for, or small bunches of warts about a discharging Bartholin gland. With a pledget in the forceps, each gland is milked forward for pus and smears are made; abscess or cyst noted in the labia are the result of an inflammation of a Bartholin duct. Note also possible scar of laceration. Finally, the speculum is gently inserted with blades partially separated, permitting inspection of the anterior and posterior walls as the ends of blades advance to anterior fornix. Many times erosion or venereal warts are seen on the vaginal walls. When the fornix is reached the blades are opened and advanced to include the cervix. Here, perhaps, are complicating cervical tears or erosions of gonorrheal secretions, cysts, a ropy, mucous ribbon from the cervix, yellow or reddened pus. Clearing the cervical canal with some warm alkaline solution and milking the cervix with the collapsing speculum blades to massage the included glands, we are able to get the best specimen for the slide. One slide may carry all these smears, each being recognized at examination by its position on the slide, so that one handling suffices.

Instrumental examination ceases here, unless we are prepared to dilate the cervix and do a curettage, being convinced of an endometrititis and an absence of adnexal involvement.

The treatment of the pathology already found, should one or all sites be infected, could well fill a volume. That for Bartholinitis may be palliative or radical. Some have said to insert a small, blunt, hollow needle into the duct and inject certain solutions, but I have never been able to inject these tortuous,

swollen orifices. The use of the cautery or high frequency current after thorough cocainization is very adaptable. The most reliable, after the condition has become chronic, is total extirpation with the knife. Massage and injection mean recurrence after recurrence. Skenitis acute is palliative with argyrol solution or other silver salts, or slitting and applying silver nitrate 50 per cent., or cauterization of abscess surface.

The treatment of urethritis acute is ameliorative. Cleanliness, rest, irrigation of meatus with mild antiseptics, and later, when necessary, .5 to 5 per cent. protargol, 5 to 30 per cent. freshly made argyrol, 2 to 5 per cent. of silver nitrate applied with a medicine dropper. Later still, stricture and infiltration treated by dilation and the application of strong silver salts through the urethroscope.

The cervix, as has been said, is lined with columnar epithelium. It is studded with the openings of deep compound racemose glands, some penetrating deeply into the muscular stroma, making an ideal, lifelong harbor for gonococci and not to be reached by superficially applied treatment. The acute condition is well handled by cleansing douches and 25 per cent. argyrol, later strips of gauze, saturated 1 per cent. methylene blue in glycerin, 5 per cent. picric acid in alcohol. Tincture of iodine inserted on applicator followed by 20 per cent. argyrol tampon, or as recommended by C. K. Smith, 20 per cent. silver nitrate applied for ten minutes followed by tincture of iodine, the resulting silver iodine deeply destroying the whole glandular structure. Norris of Philadelphia advocates the actual cautery. The cervix being nonsensitive, the red cautery is inserted for several short periods two or three centimeters into the cervix.

A condition not often definitely recognized as an entity alone is acute gonorrheal endometritis. After abortion, labor, or even the menstrual period, the cervical canal is softened and more patulous, the secretions less occlusive favoring the ascent of the infection, and promiscuous treatment of cervicitis may carry the infection upward. Concurrent with the extension, the menstrual flow or locia may suddenly stop, become excessively profuse and over-prolong itself. There is usually a chill, low grade fever, a not severe pain in the lower abdomen, the leucorrhea, if not also cervical, is thin and not tenacious—very different from the ribbon mucous product of cervicitis. The uterus is slightly enlarged, softened and tender, the cervix later hypertrophied and very patulous. That it is of gonorrheal origin may be known, sometimes by identification of the microorganism in the leucorrheal discharge, and by the evidence of gonorrhea of the urethra and lower genital adnexa. In chronic

endometritis, the persistent leucorrhea is the chief symptom, when associated with delayed dysmenorrhea in those previously normal. Sterility and abortion are frequent sequences. Even without identifying the microorganism, the eroded cervix, history of urethritis, Bartholinitis, etc., are diagnostically helpful.

Because of possible patulous tubes, intra-uterine lavage is not permitted. Hygienic conditions, rest in bed and hot douches are kept up until assured that there is no adnexal involvement. Then a complete cervical dilation and thorough deep curettage is done, the uterus dried out and packed with iodine gauze. Such treatment would be useless and the manipulation dangerous, if the adnexa are involved. On account of the depth of some of the endometrial glands, a single treatment of this kind is not sufficient and must be repeated in two or three months. In the interim, the uterus is weekly or more often swabbed with iodine through the patulous canal. Never should swabbing be done through a tight cervix, a possible simple cervicitis or when the adnexa seem involved.

The involvement of the Fallopian tubes comes by extension of an endometritis. Always is there in the history of an endometritis, the acute extension following menstruation, uterine lavage or application for dysmenorrhea. The condition is essentially chronic, characterized by acute exacerbation, when a tube will leak its contents into the abdominal cavity, usually following menstruation, violent exercise, sexual excess or trauma, pain in the lower abdomen, symptoms of peritonitis, tenderness, history of endometritis or gonorrhea and acute relapses are the outstanding features. When bimanual examination is possible, tender masses are found about the tubes and a retroflexed uterus due to cicatricial contractions. The tubes and ovaries are often pulled into the cul-de-sac. Symptoms of appendicitis are not unusual, due to the general distortion of the pelvic organs by adhesions and contractions. The colon is kinked, constipation results, the whole mass is bound down and often immovable.

When the diagnosis of gonorrheal salpingitis is made, ameliorative measures are taken to cause the quick subsidence of the acute symptoms. Rest in bed, hot douches, and Fowler's position for a week or two will be sufficient. By these means the infection is localized, adhesions permitted to form and a certain amount of peritoneal immunity acquired. Operative interference is best made before another inevitable recurrence and more involvement takes place. With each recurrence, the flooding of the ovaries with pus, producing perioöphritis or oöphritis, fewer chances for

conservation of the ovarian tissue remain. Operation before contractions take place is indubitably best.

When we mention salpingitis, oöphritis, peritonitis with extension of inflammatory conditions, the term pelvic inflammatory disease is a short cut, but besides pelvic inflammatory disease of gonorrheal origin, we have tuberculous and another streptococcus and staphylococcus pelvic inflammatory disease.

The following notes on differential diagnosis of inflammatory diseases were taken from a lecture by Norris.

History of gonorrhea of lower genitalia—purulence, as after marriage—transient urethritis, history of ascending inflammation, not severe, never a general perimetritis, and left alone will subside but always recur.

Streptococcal infection follows emptying of uterus—an endometritis and metritis after a break in the cervix, chill, high temperature and pulse, sudden extreme illness.

Tuberculous onset at any time, but preceded by other primary lesions and symptoms, ascites, bilateral involvement—primarily of the tubes. Occasionally T. B. demonstrable by slide, but better by inoculation.

Gonorrhea marked by sterility, dysmenorrhea, leucorrhea and recurrences.

Streptococcus acute, severe, recovery. Tuberculous, a large proportion die of complications in five years.

Gonorrhea, red cervix, retroflexion, uterus not usually baggy or large adnexa, knobby, the chief lesion high.

Streptococcus, recent pregnancy, baggy uterus, cellulitis of broad ligament with uterus pushed to one side, tubes not being primarily affected, the chief lesion low in pelvis.

When the diagnosis of gonorrheal pelvic inflammation is made a temporary waiting policy is best. It is very seldom ever fatal. Great friable tubes soon resolve themselves and are more easily handled. Of course the presence of pus demands immediate evacuation or removal. When all is said, palliative treatment, taking months of time for results, that cannot be considered a cure, seems a waste of time, because sooner or later operation is necessary. The one great idea is to conserve ovarian tissue, avoiding the distressing sequelae of artificial menopause.

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NON-TUBERCULOUS INFECTIONS OF THE KIDNEY*

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Non-tuberculous kidney infections may be defined as the entrance and growth into the

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kidney or its pelvis, or both, of organisms other than the tubercle bacillus, resulting in a condition varying from a mild inflammation to complete destruction of the kidney and known by such descriptive terms as pyelitis, pyelo-



Fig. 1. Pyelogram, normal in position and outline. Urine from this kidney was normal.

nephritis, infected hydronephrosis, pyonephrosis and perinephritis. These infections usually occur independently of tuberculous infection, but in rare instances may occur in combination with it. In such cases the tuberculous infection is primary.

The organisms usually encountered, in the order of their frequency are, colon bacillus, staphylococcus albus, staphylococcus aureus, bacillus enteritidis, streptococcus pyogenes, typhoid bacillus, pneumococcus, and, rarely, gonococcus. The colon bacillus is by far the most prevalent and is found in from 60 to 90 per cent.

Routes by which infection may reach the kidney are: 1. Hematogenous, through the blood stream. 2. Lymphogenous, through the lymph channels, which may be through those lying in the ureteral wall or through those extending from the colon to the kidney. 3.

Urogenous, where the infection is supposed to travel up the lumen of the ureter. 4. By contiguity from infected tissues lying in close proximity to the kidney.

The probability of infection through the blood stream is accepted without question by all writers, but the route taken by the so-called ascending infection, where the infection primarily existed in the bladder or the genitals, is still somewhat undecided. At present most writers seem to favor the lymphogenous rather than the urogenous. Sweet and Stuart have worked out a system of lymph-vessels in the walls of the ureter which anastomose with those of the bladder and pelvis of the kidney. Among their experiments they have removed a section of the ureter on one side, replacing it with a tube, whereby the lymph flow is interfered with, but the lumen of the ureter is held intact; under appropriate circumstances they have produced infection in the opposite kidney but not in the kidney on which the ureter was severed. They do not explain the possibility of infection by continuity, which would also be interfered with where the tube replaced the section of ureter. Eisendrath, by a study of cross and longitudinal sections of the infected ureter, concludes that ascending infection always takes place through the lymphatics. All of these experiments have been performed upon animals which under ordinary conditions



Fig. 2. Shows mildly infected pelvis which was completely relieved with one lavage.

are not subject to such infections, hence they are not directly applicable to the human body. Cabot and Crabtree, after looking over Eisendrath's work, do not agree with him in every respect, and from their own work on clinical

cases they apparently believe, in the absence of mechanical obstruction to the ureter, that all kidney infections are hematogenous. They do



Fig. 3. Chronic pyelitis, colon bacillus infection. Normal kidney function. Note the worm-eaten appearance of upper end of pelvis.

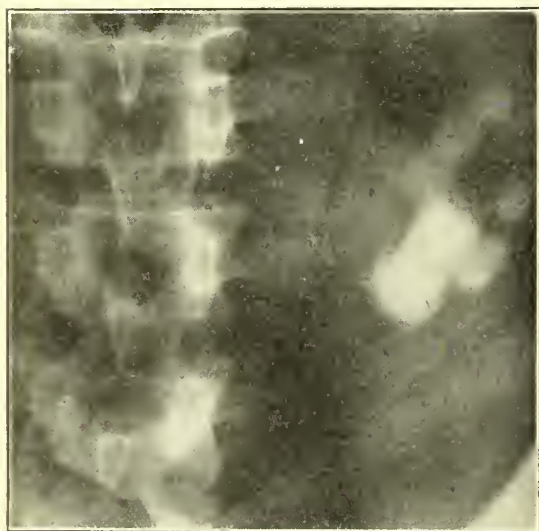


Fig. 4. Pyelogram of kidney which when removed showed multiple abscess formation throughout kidney structure (colon bacillus infection.) Note that abscesses do not show in picture.

not deny, however, the possibility of the so-called ascending infection. In my own unfortunate experience it would seem that these

infections were of the ascending urogenous type and were further aggravated by the instrumentation, for cases whose urines were sterile previous to some operation that made it necessary to catheterize the patient due to retention resulted in an infection of the bladder, usually colon bacillus; after days and weeks of irrigations and the common treatment of cystitis the conditions remained unimproved; a bilateral ureteral catheterization carefully done, followed by a lavage of each pelvis with demonstrable infection in one or both ureteral urines; a violent pyelonephritis



Fig. 5. Chronic pyonephrosis (mixed infection); function about 50 per cent. normal. A similar condition on opposite side has necessitated palliative treatment from which good results have been obtained.

immediately followed which resulted in much anxiety on my part and inconvenience to the patient.

As the kidney is one of the most important organs of elimination through which countless numbers of bacteria pass without injury to kidney structure or impairment of function, we feel that we may reason by analogy that for infection to take place, the particular strain of offending organism must be of unusual virulence, or that the resistance of the gland itself has been lowered from toxins free in the blood

stream, injury, or by stagnation of its normal function resulting from back pressure of the urine; the latter may be due to a mechanical, partial or complete obstruction of the ureter, such as a misplaced kidney, a tumor, stone, the pregnant uterus, stricture or kink in the ureter, or to the urethral outflow, such as prostatic obstruction, stricture, stone or tumor.

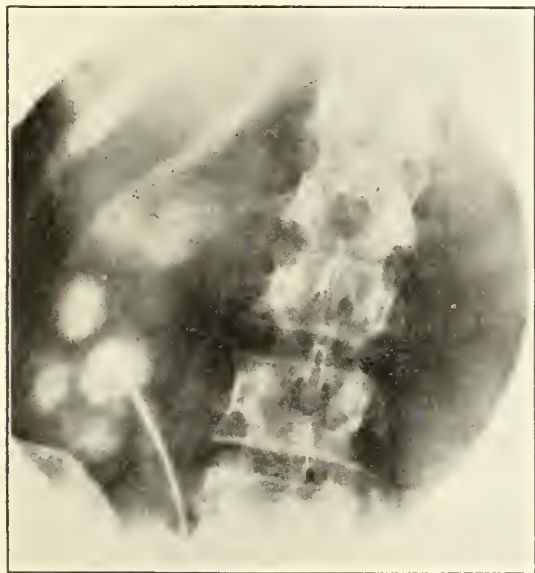


Fig. 6. Chronic pyonephrosis (colon bacillus infection) of only remaining kidney. Under appropriate treatment the patient has gained about 25 pounds in weight and feels good. Kidney function and blood chemistry are now almost normal.

We should also not lose sight of the fact that an infected embolus may lodge in a glomerulus or any small vessel of the kidney and excite infection. This sort of infection is said to be virtually always associated with endocarditis and is usually unilateral.

Infected foci of any part of the body, such as tonsillitis, dental caries, boils, gastric or intestinal ulcers, appendicitis, gall-bladder disease, sinus infection, etc., predispose to kidney infections, and oftentimes the same organism can be demonstrated in ureteral urines that exist in the infected focus. It would seem, since the colon bacillus is the predominating offender, that concealed, gastric or intestinal ulcers, or even constipation uncomplicated by an open lesion, are really the cause of more trouble than we have been able to demonstrate. I am reminded of a case, a physician, whose bilateral pyelitis cleared up as if by magic after appropriate treatment had been administered to an existing gastric ulcer.

Development of pyelitis accompanying or following gonorrhea is really more common than is usually supposed. Most of these infections are of the staphylococcal group, and as staphylococci often undergo changes in their staining characteristics when in the urine, it

becomes quite difficult to differentiate them from gonococci. Many such cases have come under my observation and in only one could I, by a long process of exclusion aided by the laboratory, conclude with any degree of satisfaction that it was a gonococcus infection.

No age is immune to kidney infection, though it is more prevalent in infancy than in adult life. Females are more susceptible than males, which is probably due to the anatomical construction of the genitals and urethra; female infants are affected in a proportion of about 5 to 1 of the male.

Symptoms are variable. The typical case begins with a chill, high fever, sweats, leucocytosis, thirst and all the findings of an acute sepsis, usually accompanied with pain in the back and abdomen of the affected side, which may radiate to the shoulder, and usually radiates down the course of the ureter. The pain may be acute and paroxysmal in character, or it may be dull, aching and more or less constant. This is probably dependent upon the amount of ureter obstruction due to the inflammation in it. Tenderness to palpation and



Fig. 7. Chronic pyonephrosis (colon bacillus infection). This kidney is to be removed because there is virtually no kidney function while the opposite kidney is normal in every way.

deep percussion is claimed to always exist, and the affected kidney may be definitely enlarged. In the very early stages of some of the concealed infections there are no urinary disturbances. In most of the cases from the beginning, and in every case at some time or other, the urine contains variable amounts of pus, some albumen, red blood cells and the offend-

ing organism. Casts are occasionally found, epithelial cells usually always. The urine is often increased in amount and the specific gravity correspondingly decreased. Bladder and deep urethral symptoms depend upon the amount of involvement of these organs. Occasionally the symptoms are absent but usually there is frequent urination with pain and tenesmus at the end of the act, oftentimes is accompanied with a few drops of blood.

Favorable progress in this class of cases under appropriate treatment is marked by a



Fig. 8. Cystogram showing chronic pyonephrosis and hydro-ureter. Note contracted bladder.

gradual remission of the symptoms after a few days or a week; the pain becomes less severe, chills fewer in number and milder in character, the temperature drops to normal through the night, but may rise to 104 or 105° F. during the day, gradually decreasing until finally the patient feels and appears normal again. Unfavorable cases grow progressively worse and often die within a few days unless very radical measures are taken.

Cases of another class are those where the symptoms of onset were very mild or entirely lacking. Usually the first symptoms noticed

are those of the bladder, such as frequent or painful urination, cloudy urine, or there may be a urethral discharge. Many of them apply for treatment for gonorrhea. There may be a rise in temperature after exposure or strenuous exercise or following an operation. Occasionally there is pain in the kidney and ureter. These cases have already reached the chronic stage before they apply for relief.

Diagnosis becomes especially difficult in the small number of cases where there is a concealed lesion from which no pus escapes. Usually the symptoms are alarming and many of them have been the victims of exploratory laparotomy, appendectomy and cholecystectomy in the hands of surgeons doing conscientious work. Naturally their symptoms are not improved and the real diagnosis is made clear after a short time when pus and bacteria appear in the urine. Pyelitis in infancy is also very difficult to diagnose at times owing to the fact that a satisfactory specimen of urine is not easily obtained, thus making a definite conclusion only possible by eliminating all other conditions that may cause such symptoms.

The average case of chills or chilly sensations followed by high fever, pain in one or both sides of the back often radiating over the course of the ureter, with pus and bacteria in the urine frequently, more or less urinary disturbances, and an increased leucocyte count, nearly always mean kidney infection whatever the cause may be. It is necessary to differentiate between appendicitis, salpingitis, gall-bladder disease, duodenitis, acute pancreatitis and beginning epididymitis on the right side, and salpingitis and beginning epididymitis on the left.

Occasionally an acute infection of the prostate will cause symptoms similar to pyelitis, there is more obstruction to the urinary outflow, the prostate is enlarged, tender and much pus may often be expressed from it.

Our one sure means of diagnosis, except possibly in the few cases of concealed infection before pus and bacteria have escaped into the urine, is cystoscopy and ureteral catheterization: collecting specimens from each kidney, sedimenting, straining and examining with the microscope. I believe we are often a little too hasty to catheterize ureters in the acute cases; it is so easy to do and so certain that we at times overlook the consequences of our examination and do not give these infections time to clear up or become better localized under more simple and undoubtedly more effectual treatment. It is the same rut that many of us have fallen into in relying upon the Wassermann test in diagnosing syphilis. I am sorry to admit that I, as doubtless many others, have been guilty of catheterizing ure-

ters too early, both as a means of diagnosis and of treatment, thereby converting a practically quiescent pyelitis into a marked pyelonephritis, an example of which has been referred to above. It, however, becomes absolutely necessary to catheterize the ureters of those acute cases whose symptoms are that of obstruction, as a means of treatment and as a last resort before operation. Many kidneys have been saved and made functional by this procedure which otherwise would necessarily have been sacrificed. As a means of diagnosis in the chronic cases, especially those who do not give a history of acute onset, ureteral catheterization is indispensable and I cannot praise it too highly. No harm can be done in these cases if reasonable care is used in passing the instrument and in asepsis, or rather antisepsis, since cystoscopes are usually never made aseptic.

I do not hesitate to catheterize all chronic cases of pyuria with infection when there is no demonstrable obstruction to the urethral outflow and no improvement from repeated bladder irrigations. I always lavage the pelvis with some antiseptic solution whether or not infection is suspected in the ureteral urines.

When possible I believe a radiograph should be made with radiograph catheters in place, of all kidney infections and a functional test made of each kidney, using for the latter that which, in the operator's experience, is the most reliable. I employ phenolsulphonephthalein and administer intravenously. Simple pyelitis shows no depreciation in function, while infection of the secreting substance always does in proportion to the degree of involvement and destruction. Utmost precautions should be used in making a pyelogram both as to selection of the case and the manner of injecting the solution used. Radiograph solutions are necessarily heavy in molecular weight and often cause severe reactions when introduced into many sacculated, or movable kidneys, or when confined behind a stone acting as a ball-valve in the pelvis. The use of undue force and the injection of too great a quantity of the solution is forever to be condemned. To rely upon the patient's feelings as to the amount of injection used is unsafe, as some patients never complain of pain before damage has been done, others complain as soon as 1 or 2 c.c. have been injected. Judgment, which is only gained by experience, must be exercised.

The technique of examining ureteral urines that I invariably follow is to sediment the fresh specimens as early as possible in sterile tubes, then make fresh and stained smears on clean slides of each specimen. The unstained specimens are examined for pus, casts, epithelial cells and crystals. Microscopical blood is usu-

ally of no significance as trauma from the catheters often cause such findings. The stained smears are examined for bacteria and questionable pus cells.

Cultures of ureteral urines have been unreliable in my hands, as it is so easy for the specimen to become contaminated owing to the fact that an absolutely aseptic cystoscopy is not practical. Neither have I found accurate pus cell count in ureteral urines of any value, as practiced by some. The number of cells depend upon the length of time and the rate of speed the specimens were centrifuged, if sedimented specimens are examined, and



Fig. 9. Stone of pelvis and upper end of ureter with infection acting as ball valve.

upon the amount of urinary dilution, which is influenced by the liquid intake.

The decanted urine is examined for reaction, specific gravity, sugar and anything special which may be seen fit to examine for. Small amounts of albumen are of no consequence since there is nearly always blood serum in the specimens that accompanies the red blood cells.

Definite knowledge of the underlying pathology is essential to a good prognosis. As a rule the coccus group of organisms attack the vascular portion of the kidney resulting in

abscess formation. Their presence in the urine in an acute attack, or if not eliminated after one or two pelvic lavages, together with other measures of treatment should be observed with a view to surgery. The colon group usually attack the pelvis, calices and secreting tubules, and rarely ever form true abscesses. Some writers go so far as to say they never do,



Fig. 10. Stone filling entire pelvis and calices. Urine contained pus but no demonstrable bacteria. Kidney function about 75 per cent. normal.

though I have had one case in my own work in which there was true multiple abscess formation. Colon bacilli alone had been found in the ureteral urine. The pathologist's report on the specimen was: "Abscess kidney with simple inflammation;" there is no record of the organism found. Acute and many chronic cases of colon bacillus infection react very nicely to non-operative procedures, while a few of the chronic cases show sacculcation of the kidney from infection and back pressure often with complete destruction, which may be determined by functional tests and pyelograms. Any type of infection may be unilateral or bilateral; fortunately a great number of them are of the former variety.

Removal of any obstruction to the urinary outflow, which may be located anywhere from the pelvis to the urethral meatus, many times

results in a spontaneous cure of the infection, if irreparable damage has not already occurred.

Treatment is divided into three classes:

1. Bed rest, large quantities of pure water by mouth, a bland diet consisting of an abundance of milk, a minimum amount of meat, and total abstinence from all condiments. A warm sponge or tub bath, depending upon the condition, once or twice daily to promote diaphoresis, large doses of some urinary antiseptic by mouth, of which hexamethylenamine in combination with sodium acid phosphate has been the most effectual in my hands. In the colon bacillus infections this may be alternated at four or five-day intervals, or entirely supplanted with an alkaline, such as large doses of sodium bicarbonate or potassium acetate. Often the pain is entirely relieved and an early definite improvement of symptoms results from the use of one or the other of these alkalines, of which I have found sodium bicarbonate the



Fig. 11. Stones of pelvis and sacculcation of kidney. Urine contained no pus and no bacteria. No dye excreted.

more useful. This so-called conservative treatment is especially applicable to the acute infections without obstruction. In all cases focal infections of other parts of the body should be searched for and if found proper attention given.

2. In the later and more chronic cases as well as some of the acute cases which often-

times show no improvement from the obstruction, in addition to the treatment outlined under No. 1, we cystoscope, catheterize the ureters and lavage the pelvis with some antiseptic solution. The solutions in general use are 1 to 10 per cent. argyrol or silvol; $\frac{1}{4}$ to 1 per cent. protargol; 1 per cent. mercurochrome 220 and $\frac{1}{2}$ to 10 per cent. silver nitrate. Where a solution of silver nitrate is used stronger than 1 per cent. the bladder should be filled with saline to neutralize the extremely irritating effect of the silver solution upon the bladder mucous membrane. McGowan reports good results from the use of 2 per cent. aluminum acetate, or 1-10,000 to 1-5,000 solution of oxycyanide of mercury. Lavage is repeated every 3 to 10 days. Certain conditions may require continuous drainage in which case one or both catheters may be left inserted into the kidney pelvis and non-irritating solutions as boric acid and saline may be used as a lavage every few hours; using one of the more antiseptic solutions once or twice daily. A retained urethral catheter which allows continuous drainage is often of great value, and is especially useful where there is impediment of the urethral outflow. Vaccines, preferably autogenous, but if inconvenient or if there is emergency stock vaccines are valuable. Like all vaccines, however, they have their limitations.

3. Operative procedures are resorted to for relief of most obstructions and where the procedures outlined under Nos. 1 and 2 have been of no avail and the patient's life is in danger, for the drainage of one or both kidneys or the removal of one kidney if we are so fortunate as to find the infection unilateral. In the very chronic cases where the infection cannot be relieved, drainage or removal of the affected kidney is necessary as the operator sees fit after a thorough study of the function and of radiographs, which should be made. Small cortical abscesses, if not too numerous, may be excised or incised and drained. Perinephritic abscesses often may be drained without marked disturbance to the kidney itself.

CONCLUSIONS

(1) Every post-operative case where we find it necessary to catheterize for relief of retention should be irrigated with some antiseptic solution before the catheter is withdrawn. If possible two or three doses of some urinary antiseptic should be given by mouth.

(2) Ureteral catheterization is, generally speaking, indispensable in the diagnosis and treatment of kidney infections; but should only be used in the very acute cases where the more conservative measures have failed, or where the symptoms of obstruction show that the patient's life is in danger.

(3) Every case of pyuria should have a careful bacteriological examination of the urine. After all obstruction to the urethral outflow has been relieved and sufficient time has elapsed to clear up an ordinary cystitis under irrigation and the other accepted treatment, if the infection is non-gonorrheal and the prostate and vesicles are found not at fault, we should not delay ureteral catheterization to determine the condition of the kidney and to administer treatment if necessary.

(4) Complete examination of every chronic kidney infection as to function, obstruction of the ureter, calculi, movable kidney, and a complete radiograph examination of the kidney itself, must be done before intelligent treatment can be administered.

(5) Operation should be as a last resort after more conservative treatments have failed, or when we feel that they would be valueless. Before complete nephrectomy is performed the function of the opposite kidney should be ascertained.

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BIBLIOGRAPHY

1. Sweet and Stuart: Surgery, Gynecology and Obstetrics, Vol. XVIII, p. 460, 1914.
2. Cabot, Hugh and Crabtree, E. G.: Surg., Gyn. and Obs., Vol. XXIII, p. 5, 1916.
3. Eisendrath, D. N. and Kahn, J. V.: J. A. M. A., Vol. LXVI, 1.
4. Fleishman, A. G.: Iowa State Med. Journal, Vol. VII, p. 2, 1917.
5. Parmento, F. J.: New York Med. Journal, Vol. CIXF, 4, June, 1919.
6. Kreisel, F.: Illinois Med. Journal, Vol. XXIX, 3, 1916.
7. MacGowan, Granville: Calif. Med. and Surg. Jour., Vol. XIII, 4, 1915.
8. Cabot and Crabtree: Boston Med. and Surg. Jour., Vol. CLXXIV, 22, 1916.
9. Maury, J. M.: San. Med. Journal, Vol. X, 7, 1917.
10. Wettstein, J. C. R.: Illinois Med. Jour., Dec., 1914.
11. Culver et al.: Jour. A. M. A., Vol. LXX, 20, 1918.
12. Robey, Wm. H.: Boston Med. and Surg. Jour., Vol. CLXXII, 6, 1915.
13. Brewer, Geo. E.: New York Med. Jour., Vol. CI, 12, 1915.
14. Cunningham, John H., Jr.: Jour. A. M. A., Vol. LXIV, 3.

NOTES ON THE PSYCHIC INFLUENCE ON BLADDER DISTURBANCES IN WOMEN

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Micturition like deglutition is a complex act bringing into play various muscle groups, both voluntary and involuntary. Both are partly under the control of the will and partly automatic. As some persons cannot swallow the smallest pill, no matter how great their effort to do so, who can and do swallow the largest morsels of food without difficulty, so other persons cannot control the bladder function under certain conditions no matter how hard they try. In fact, the conscious effort in both instances seems to make the act impossible.

We are all familiar with the fact that the small boy will wet his pants when he is afraid. There is no question that fear and anxiety are potent factors in urinary incontinence in the adult also. This anxiety may be caused by the fear of incontinence itself. Most of us perhaps have experienced an ardent desire to void with a bladder only partly filled, because we contemplated that such an act under the conditions or environment at the time would be difficult or impossible. An acquaintance of mine never gets up at night to void unless he rides in an upper Pullman berth simply because he dreads the idea of crawling down from his perch in the middle of the night.

In this same manner incontinence tends to perpetuate itself. After a woman has had the misfortune of voiding involuntarily while laughing heartily at the theater or at a function, she dreads to laugh in public lest it happen again, while this very fear is very apt to make it happen. After the second time she is convinced that every time she laughs she will have no control of her bladder. In the same way enuresis perpetuates itself, especially in older children and adults.

A well-developed girl of 15 years had enuresis from early childhood. She was raised in the country and while at home bore her affliction with resignation. However, when she came to the city to live with strangers she was horribly embarrassed. As she seemed reasonably intelligent I had a lengthy conversation with her, explaining that, while the condition was common in early childhood, there was no cause for it at present except her fear and embarrassment. I assured her that she had no organic trouble and also assured her that now since she understood the *modus operandi* she would no longer worry about it and therefore would not wet the bed. That was the end of her trouble.

Even when there is apparently an anatomical basis for the incontinence, which, by the way, is not always easily determined, the psychic element may readily aggravate and perpetuate the trouble. The anatomical condition may be the predisposing, the psychic influence the causative factor. The following case, apparently due to childbirth, will illustrate this point:

A married woman of 38 years had involuntary escape of urine since the birth of her only child 19 years before. It had gotten progressively worse so that she was compelled to wear a pad whenever she was on her feet. In fact, she was wet constantly. She had a myomectomy and single oophorectomy performed five years ago and has gained 70 pounds in weight. Her trouble, however, bore no direct relation to the moderate obesity. For the past year she complained of some burning. Her appetite was good and bowels regular. She had always been nervous, but especially so since her

only son was killed in France. Her genitalia were practically normal except for some adhesions to the left of the uterus. The anterior vaginal wall was not markedly relaxed. The catheterized urine showed a few casts, some white and red blood cells and some epithelium. There was no albumen nor sugar. Cystoscopic examination showed the interior of the bladder to be perfectly normal.

Since she complained of headaches she was referred to Dr. H. B. Miller who operated on her for a chronic infection of the ethmoid cells. She was given silver instillations and alkaline diuretics without any improvement of her incontinence.

Coming to the conclusion that we had to deal with a condition which while caused by childbirth was kept up by the patient's nervous condition, I referred her to Dr. Wm. L. Nelson who treated her with bromides, suggestion and thyroid extract. She later removed to Texas but while on a visit here lately stopped in to tell me she had lost 50 pounds in weight and was the happiest woman on earth because she was entirely free from her old trouble.

Inability to void may occur in the same way. Patients who had to be catheterized while in the hospital frequently have some trouble in voiding even after they are out of bed. So the fear of inability to void under certain conditions may actually cause it, as the following case will illustrate:

A nervous spinster of 35 was unable to void when on a railroad train. As she traveled considerably this was a very painful annoyance which made her dread travel. In taking long trips she was compelled to make occasional stops en route.

It was explained to her that no doubt at one time when taking a journey she was unusually high strung; that through modesty perhaps she had allowed her bladder to become overdistended and as a consequence she was unable to void. Quite naturally she associated her inability to void with her journey and the next time dreaded a repetition. After the second experience she was convinced that she could not void while on a train and the habit was established. The next time she traveled she was not to worry about her bladder and would certainly have no trouble. Soon afterwards she made a trip from St. Louis to Boston and later from Boston to Denver without experiencing the slightest difficulty. The only subsequent trouble she had was about a year later when she made a short trip on an interurban car which had no toilet facilities. The consciousness of this fact made it impossible for her to void even for a few hours after completing the trip.

These factors must be borne in mind before advising operative procedures for incontinence in women. If incontinence exists in doubtful cases, the neurological factor must first be ruled out. Direct pressure of tumors or absolute relaxation of the sphincter, of course, do not come into consideration here, though it must be remembered that the sphincter is a muscle which may have simply lost its tone. Inflammation and local irritation must, of course, be corrected, but even then the incontinence may continue for some time because the habit has been established, just as a nasal headache may continue for some

time after the cause has been removed by operation.

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**A PLEA FOR CLOSER CO-OPERATION OF THE
SPECIALIST AND THE PEDIATRICIAN ON
THE TONSIL AND ADENOID QUESTION**

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The writer has no startling message to bring to the members of this Society, but the thought has often come to him how much of the little he may happen to know about the tonsils as a focus of infection, he has learned from the pediatricist—mostly from cases handled in the clinic. For many obvious reasons, in private practice the cases are not worked up so well before operation, nor so closely followed afterwards. As we are living in a practical world we shall have to be practical and assume such position in the practice of our specialty as the profession and the laity place us. As we know, in all properly regulated clinics the child goes first to the child specialist and is here referred, if the case demands it, to the other departments for special work. I believe the above remarks will properly state my object in writing this paper.

The removal of tonsils and adenoids in children has become quite a question for the profession to consider. Instead of looking upon it as a craze that will soon subside, we are compelled to realize its procedure as a sound and justifiable operation in selected cases. Instead of trying to be facetious and saying that the operation should be performed synchronously with the tying of the umbilical cord, or making the statement that they are placed in the body only for removal as they have no known function and are only a source of danger, we should give each case individual study, and in the meantime work for a broader and more intimate understanding of focal infection.

Really, in conjunction with the capable pediatricist, we can do very little in the matter of coming to an understanding as regards the question of the tonsils as a septic focus in a given case. In my opinion, he is the one who should decide the operation. We may be of some assistance, however, if by nothing else than having a conversational knowledge of the subject. But the fact is, many cases are referred to us by the family physician, and he is in most instances a good consultant if he is progressive, and it is in these cases and the unreferred ones that we have to advise and often decide either for or against the procedure.

Acute inflammations of the pharynx and tonsils are usually infectious in character and may be due to various forms of pyogenic and other organisms; thus, in tonsillitis and the other forms of acute anginas, the most common micro-organisms concerned are the streptococcus-chain, hemolyticus and viridans, the staphylococcus, the pneumococcus, and the micrococcus tetragenus. Many other forms have been isolated.

The hyperplasia of the pharyngeal mucosa in children, commonly called adenoids, has been found in a considerable number of cases to be tuberculous. The fact should be borne in mind that from tuberculous adenoids and tonsils tubercle bacilli may pass through the lymph channels to the bronchial and cervical lymph nodes, and that the pharynx may thus become a more important portal of entry in tuberculosis than has been heretofore recognized. These nodes, when tuberculous, have frequently been shown to contain bacilli of the bovine type—an observation pointing to the infection by means of food.

The tonsils are very prone to infection on account of their location at the entrance of the intestinal and also of the respiratory tracts. The reason for their vulnerability appears to be on account of the close proximity of the lymphatics to the surface, and their poor protection by a thin layer of epithelium liable to abrasion or destruction.

The lymphadenoid tissue of the tonsil is protected by a layer of stratified epithelium, but the surface of the tonsil is invaginated to form the crypts, and within these crypts it is possible for bacteria to multiply and produce such an accumulation of poisonous products as to destroy the integrity of the epithelium and so permit an invasion of the lymphadenoid tissue beneath. Rosenow compares it to a leaky test tube—a leak through the capsule.

It is then just a question of time and the resistance of the individual for the bacteria to be carried by either lymph or circulation to distant parts of the body and set up a new area of acute inflammation and infection.

Adenoids and tonsils, defective teeth, gastroenteritis and heart lesions are the most frequent causes of malnutrition.

In nasal disorders we should consider adenoids and tonsils, nasal diphtheria, syphilis, and foreign bodies in the nose, any one of which might cause sinus trouble. In epistaxis we may have true hemophilia or a heart lesion; it may be caused by a foreign body in the nose; the presence of adenoids may cause the condition.

The removal of tonsils and adenoids in children for asthma is generally disappointing. Such children should first be tested for hypersensitiveness, and if they do not react to pol-

len extracts, hair or food of any kind, then local foci of infection should be looked for. Thirty per cent. of these children give history of eczema, urticaria, or angioneurotic oedema. (Longscope: *Jour. A. M. A.*, Nov. 12, 1921.) Here we may just as well mention status lymphaticus. Enlarged thymus may cause thymic asthma; hypertrophied tonsils and adenoids generally accompany such conditions as status lymphaticus, along with enlargement of the bronchial glands.

Adenopathy and adenitis. The lymph nodes which drain the tonsils lie in the anterior triangle of the neck; enlargement or tenderness of these glands at the angle of the jaw points to tonsillar infection. The posterior chain lies behind the sternomastoid muscle, and drains the pharynx and nasopharynx. In scarlet fever it is the glands at the angle of the jaw which become involved, proving that the tonsil is again to be blamed. It is sometimes good surgery to remove the tonsils, or at least spread the pillars, even during the attack, for relief of glandular trouble, pain, or hyperpyrexia and ear complications. In tuberculous adenitis the tonsils are practically always at fault and should be removed. The adenitis should be treated surgically. X-ray treatments may cause a fatal reaction and are not so free from danger as might be inferred.

Albumin in urine and nephritis. Albumin is a symptom of some focal infection which should be sought after and treated accordingly. If it is tonsillar they should be removed, in most cases immediately. Albumin with casts without edema should be dealt with in the same manner. One writer reports 390 cases without a fatality operated for adenoids and tonsils. He makes the statement that all the cases were worked up by the pediatricist, adding without explanation that no cases with albumin were operated.

Secondary anemia is very often caused by infected tonsils, often following rheumatism and heart disease, but just as often not accompanying such lesions.

In skin diseases the most frequent are urticaria, infectious eczematoid, dermatitis and eczema. The streptococcus viridans is most usually the offending agent. It acts both directly through its toxins and indirectly by sensitizing through its role as foreign proteid.

Osteomyelitis, Hodgkin's disease, phlebitis, appendicitis, etc., may be mentioned as probably due to focal infection.

If unable to decide the question of operation by the history of the case, or by physical examination, one may resort to the laboratory test. This seems to be the consensus of opinion in such cases: If by taking the culture from the supratonsillar fossae, and finding that the streptococcus predominates—chain, hemo-

lyticus or viridans—and in the face of systemic infection, the case should go on to operation.

In conclusion we can well say that the adenoid and tonsil operation is a well established surgical procedure in children—in fact, it is the one which brings the most spectacular results in certain cases. The nose and throat specialist is well qualified to pass judgment on the question of operation in cases where the symptoms are local, or confined merely to the head, but cases with suspected systemic infection from this source should be in the hands of the pediatricist, or a capable internist.

402 Argyle Bldg.

EFFICIENCY AND ECONOMY IN PEDIATRIC PRACTICE

JOHN ZAHORSKY, M.D.

ST. LOUIS

The recent organization of the Missouri State Pediatric Society in which I had the honor to have a part impels me to relate some of my experiences in the practice of pediatrics, and to offer certain suggestions as to the most effective methods to be utilized in augmenting a successful warfare against children's diseases in the State. But before taking up the specific tasks which the organization mentioned has accepted, it might be worth while to discuss a few primary principles upon which successful pediatrics is based.

In the first place the home must be considered the unit of our democracy, and it is inconceivable at present that any other unit will replace this under some fantastic Order of Socialism. The individual family living in one sheltered place, apart from others, mingling with other families only a part of the time, yields not only the most natural and happy mode of life, but what is most important to physicians, also offers the most effective means of isolation in the prophylaxis of communicable diseases. Monogamy, carried out in its strict religious sense, is the most important prophylactic measure against syphilis and gonorrhea. The true and happy family life is the most important safeguard against a host of contagious diseases which will readily occur to any physician. The young child who is happy in its home and remains constantly under the care of its parent is saved from many diseases. The trouble begins when another child of the family is compelled to mingle with others at school, church, or other public places and brings disease to the home.

If the home is the best isolating place against disease it also is the natural place for the sick child to be treated. When the young child is

sick it is happiest and shows the strongest resistance when under parental care and in its home. The practice of tearing the sick child from its mother's arms and taking it to a hospital, under strange surroundings, looked at by strange faces, administered to by strange methods, and deprived of loving caresses by the parent is not good pediatrics, whether the disease is influenza or poliomyelitis. In fact, the children's hospitals of the country have as yet not proven their value, except for the scientific study of disease and for those unfortunate little ones who have no home.

I declare, therefore, that successful pediatrics must maintain and develop the principles and practice of home prophylaxis and therapeutics, and not be carried away by the costly idealism of children's hospitals, asylums, and clinics. These are only side units to the main show, and valuable to make up certain deficiencies of the home, but they can never take the place of the principal performance.

Fully 95 per cent. of my own practice is in the home and private office. Hospital care is reserved for operative cases, chronic cases who come from out of the city, and a few requiring a most intensive observation and study for diagnosis.

It is a fact that the majority of pediatricians treat their children in the home in spite of the fact that hospitals in the large cities are everywhere available.

The most important person to establish child welfare and diminish the incidence of disease and lower mortality is the trained pediatrician. One or more should be in every county and large city. He need not be a specialist, but he must have the welfare of children as his soul's desire and must understand and have received some special training in modern pediatrics.

To emphasize this point a few examples will be given of what the child's physician is expected to do, although they are familiar enough to all physicians.

Case 1.—J. B., 7 years old, became ill with fever, sore throat and vomiting. The physician could not make a positive diagnosis but suspected scarlet fever. The child was rigidly isolated at once in an attic. Three other children in the family were kept out of the sickroom and the mother instructed in the care to be taken in preventing the spread of the disease, which on the third day proved to be scarlet fever. The child was sick for two weeks but was kept isolated for four weeks longer. No other case developed in the family.

Case 2.—E. H., girl, 7 years old, had a sore throat. The physician found a small greyish deposit in one tonsil and suspected diphtheria. Ten thousand units of diphtheria antitoxin were administered at once. A culture for the Klebs-Loeffler bacillus proved positive. The other child in the family received two thousand units as a prophylactic measure. The patient seemed well in five days.

The point to emphasize in these two cases is that the physician prevented more disease in a family when once introduced. And prevention of disease should be the basic working principle of every pediatricist.

The pediatricist must not only make a diagnosis, but act on suspicion before the diagnosis is positive. He must not only appreciate the dangers of certain diseases but act before the danger signal is given. For example, the baby has an acute enteritis. He must prevent dehydration, acidosis, and dangerous starvation. The child has the croup; he must prevent the occurrence of dangerous stenosis. The child has pneumonia; he must prevent a possible cardiac weakness. It is not only the prevention of disease to which the task must be applied, but also the prevention of serious complications when disease is actually present.

It would lead too far to discuss further the function of the pediatricist. He really needs no defense, and yet in these times when the public is fostering all kinds of child welfare movements, it is well to remind the public that the greatest good to young humanity can be derived by supporting and encouraging the practice of medicine in the family, especially the pediatric physician who becomes the instructor in the feeding and care of the baby, the guardian of the older children, and who knows these children and is loved by them.

There is one thing that is demanded of the pediatricist. His work must be efficient. Great efficiency can only come after much practice, which is constantly improved by the correction of mistakes. The best work of physicians is generally done when watched by an anxious parent. This stimulus to do one's best rarely develops in hospital work where so much detail and labor is left to subordinates and nurses. Efficiency means careful work and hard thinking. It does not mean laboratory tests and consultations except after mature thought. The vast majority of diseases in children are readily diagnosed on hearing the history of the case, and examining the patient once or twice. But the physician must have the habit of always examining the patient, and he must know what to look for: hence special training is essential. I would say not only special training in a hospital but training by a pediatricist in the home. The most successful pediatricians are those who act for a time as assistants to other practitioners.

To training in efficiency we need to add training in economy. At every step in a pediatric practice the question of cost must always be considered. The people who have children are young people, most of them just commencing life's work. They may have wealthy parents but the young people prefer to pay their own way and achieve their own success. The

expense mounts up with the appearance of every child and every illness increases the cost. That pediatrician is negligent of his duty when he does not consider cost in all his work. He must acquire a frugal method of thinking which is soon recognized by the family. Not for a moment would I tolerate the insinuation that pediatric practice should be cheapened. Whenever necessary to save the child's life or prevent another illness the pocketbook must be mercilessly squeezed. At the same time expense must be spared whenever it is safe and right to do so by the avoidance of expensive tests when simple tests are just as efficient; by prescribing the cheaper drugs when it is as efficacious as an expensive medicament; by the use of home nursing force instead of trained nurses, etc.

Even the physician must be honest in his charges. No other branch of medicine must so rigidly hold to that great rule of medicine as enunciated in the Principles of Medical Ethics. "The profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration."

We have no room for grafters, extortioners and dishonest quacks in the pediatric field. They must not rob the children of good home and clothing to boost their own financial frivolity. Since the profession recently has been in many ways urged to increase their efficiency, it is often a question in pediatric practice just what is right or just to the profession and to the patient. As an illustration two cases are reported:

Case 3.—A typical case of infantile scurvy, with a characteristic history, spongy, bleeding gums around both lower and upper incisors, tender extremities and anemia, was seen but once, was carefully examined, the nature of the case explained to the parent, and a schedule of diet made for a period of three weeks, with added warnings as to the appearance of dyspeptic symptoms. Cost to the patient, \$5. Patient gaining and kicking in six weeks.

Case 4.—A similar case of about equal severity, studied, examined, blood count, and hemoglobin determination, with X-ray examination of the bones. Urine examined twice, blood three times. Daily visit to the house for two weeks, then two visits the third week. Cost to the patient, \$75. Both patients practically well in six weeks.

Now the question is: Was I negligent in the first case or did I "work" the father of the second baby for all he would stand. In the first case I depended entirely on the results of the physical examination and let the mother watch the child. In the second case all the refinements of laboratory diagnosis were added and I watched the progress by a daily visit. Both procedures proved equally efficient.

I will give another example:

Case 5.—A boy, five years old, became ill with fever, headache and vomiting. After a few days

cerebral symptoms were added and the diagnosis of tuberculous meningitis was made. The boy lived four weeks, during which time three lumbar punctures and one leucocyte count was made; also blood smear, urine, and spinal fluid examinations. The boy died. Cost to the father, \$60.

Case 6.—A similar case in a boy seven years old. All the refinements of diagnosis were added. Six lumbar punctures, several blood examinations, blood culture, several urine examinations; X-ray examination of skull and chest; Von Pirquet test, and two daily visits by the physician; also seven consultations, one aurist, one oculist, two pediatricians, two neurologists. Hospital service for two weeks. Two trained nurses in attendance. There were added the services of a pathologist who not finding the tubercle bacilli in the spinal fluid injected a guinea pig. The boy died. Cost to the father, \$1,000.

The treatment in both cases proved equally futile. While the outcome could be foretold three weeks before death yet the father spent the savings of three years uselessly.

While a wide latitude in the expenditure of money on diagnosis, prophylaxis and treatment must be allowed, the reckless and extravagant waste of the parents' money, which is needed for education, etc., in unnecessary diagnostic procedures or doubtful therapeutic endeavors must be discouraged by the physician in a firm but courteous manner.

I cannot agree with Veeder¹ that people of moderate incomes (\$100 to \$200 monthly in the city, \$40 to \$60 in the country) should become the objects of charity and take their children to free clinics and welfare stations.

Let them take their children to a competent pediatrician who knows them at home, understands the defects of their home surroundings and the racial peculiarities of the parents. This physician can more efficiently lay down certain prophylactic or therapeutic rules, economical and practical, than any free clinic or hospital with which I am familiar. The physician who does good work in an impersonal clinic will do still better work in the home of his acquaintance where his personality is weighed.

I return again to the original proposition: the greatest boon to child welfare is an adequate number of trained pediatricians scattered throughout the state.

To these should be added as aids to the physicians trained nurses and trained laboratory and field workers. But under very few circumstances should the trained nurse be permitted to go ahead in unexplored fields, and take the place and supplant the physician in a certain territory. If a certain district lacks efficient medical service to children, an endeavor should be made to train one of the general practitioners in that locality, or send a trained pediatrician to live there and become familiar with its problems.

1. Journal of the American Medical Association, July 8, 1916, Vol. LXVII, pp. 85-91.

My suggestion as to the work of the Missouri State Pediatric Society is that it use its whole power for several years in studying the needs of different parts of the state as to the availability of trained pediatricians, and do all it can to educate the practitioners in children's disease, its prophylaxis and treatment.

536 N. Taylor.

PERFORATING WOUNDS OF THE EYEBALL*

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A perforating wound of the eyeball presents to the oculist a serious condition requiring prompt treatment. Each injury of this kind carries with it the possibility of loss of vision or loss of the eyeball.

I prefer the simple classification of Fuchs, viz., incised, punctured and lacerated; the last including ruptures of the tunics of the eyeball from blows by blunt instruments.

The following questions require solution in all perforating wounds of the eyeball:

1. Is there a foreign body in the globe?
2. Is sympathetic ophthalmia apt to develop?
3. Will enucleation be necessary?

From the anatomical and pathological viewpoint we can best divide these injuries into two classes: (1) Perforations into the aqueous chamber; (2) Perforations into the vitreous body.

To determine the presence of a foreign body within the globe, we rely upon direct vision in those cases which belong to class one, and on the ophthalmoscope and X-ray for cases of class two. The ophthalmoscope is of use only in cases in which the foreign body has not become obscured by hemorrhage, cloudy media or exudates.

Class 1.—When the aqueous chamber is involved the foreign body usually enters through the cornea or ciliary region of the sclera. It may lodge in the aqueous, iris, lens or pass into vitreous or entirely through the eyeball, lodging in the orbit. Maxted, in his report of cases occurring in the soldiers at the Military Ophthalmic Center in London, states that in 7 of the 106 the foreign body had penetrated both walls of the globe and was lying in the orbit. None of the 7 had to be excised, but vision was reduced to "fingers at 3 feet."

If the wound of entrance is large, loss of aqueous takes place with prolapse of iris and formation of anterior synechiae. Injury to iris is followed by free hemorrhage into anterior chamber. If the lens is injured cata-

ract develops, and, if the foreign body carries infection, pus develops in the anterior chamber.

Iritis with or without infection develops in all of these cases, if not promptly treated; as a result of the iritis, a plastic exudate is thrown over the anterior surface of the lens resulting in posterior synechiae with occlusion and seclusion of the pupil, in the more violent cases. There follows impairment and often complete loss of vision.

The cases in which perforation takes place into the anterior chamber do not usually require enucleation, and do not develop sympathetic ophthalmia as frequently as those in which injury involves the ciliary region.

Class 2. Perforations into vitreous body. The inflammation begins in the ciliary processes and retina. These structures become hyperemic and throw out a serous exudate. If no pyogenic organisms have been introduced, and the exudate is small, a portion of the vision may be saved. Usually the exudate becomes organized and destroys retinal function. If infection takes place, abscess of vitreous develops which may be followed by encapsulation by a connective tissue membrane resulting in atrophy of the eyeball. On the other hand the pus may increase in quantity until a panophthalmitis supervenes, the after result being phthisis bulbi.

Treatment.—Treatment is best understood if we group the conditions to be met as follows: 1. Care of the wound. 2. Removal of the foreign body. 3. Care of complications (traumatic cataract, plastic irido-cyclitis, suppurative choroiditis, panophthalmitis and sympathetic ophthalmia).

When the wound is so extensive that saving the eye is obviously impossible, primary enucleation is advised. Less extensive wounds are cleansed, iris excised when prolapsed, atropine instilled and ice compresses applied.

If the perforation is in the sclera it is closed by suture of the conjunctiva or by passing sutures through the external layers of the sclera. Prolapsed ciliary body and chorioid are not excised. Small wounds close without suture by cicatrization.

The foreign body if iron or steel is removed by the magnet. If in anterior chamber, through the site of entrance. If in the vitreous through an incision in the sclera as close as possible to the F. B. If the body is non-magnetic and in anterior chamber it is removed with forceps through a corneal incision. If near the angle of anterior chamber, it is best reached through a corneal incision about 3 mm. within the limbus made with point of Keratome pointing toward limbus and passing through the cornea at an angle of approximately 45 degrees.

*Read before the Jackson County Medical Society, April 26, 1921.

A non-magnetic body in vitreous is removed by passing forceps through a scleral incision if possible. Failure often occurs and if the eye does not tolerate the F. B., secondary enucleation is necessary.

Traumatic cataract is a frequent complication, and if the rupture of the anterior capsule is extensive, lens particles escape into the anterior chamber causing secondary glaucoma, necessitating an extraction.

In all perforating injuries a violent reaction takes place and irido-cyclitis with or without infection sets in unless treatment is started early. Irido-cyclitis produces often extensive exudates in the vitreous, which ultimately become organized, shrink and produce an atrophy of the eyeball. In such cases, secondary enucleation is advised, when the retina loses its function, that is, when light perception is destroyed and decrease of tension accompanies it.

Suppurative chorioiditis following a perforating wound demands enucleation. And we now believe that panophthalmitis is best handled in the same manner. Because of the supposed danger of meningitis the question of enucleation in panophthalmitis has long been a cause for difference of opinion. Our experiences during the war seem to me to establish the fact that enucleation is by far the best treatment, as meningitis is not apt to develop, and it shortens materially an otherwise long drawn out and painful condition.

In the survey of the work of the American Expeditionary Forces, printed in the *American Journal of Ophthalmology*, August, 1919, the statement is made that enucleation is preferable irrespective of the septic or non-septic condition of the eyeball. Furthermore Dorrieux holds that the operation of choice in traumatic panophthalmitis is enucleation.

Also the risk of sympathetic ophthalmia is not great if the ciliary region is not involved. Of the 106 cases of perforating wounds of the eyeball occurring in soldiers in the Military Ophthalmia Center in London reported by Maxted, there was but one case of sympathetic ophthalmia.

There are certain changes to be watched for or high signs in sympathetic ophthalmia as they have been designated. Failure of accommodation in the good eye, continual photophobia, prolonged cyclitis, and decrease in tension in the impaired eye, blood count showing increase in mononuclear cells (S. H. Browning).

I have added a few brief case histories which illustrate some of the types of injuries mentioned.

Case 1.—M. V., aged 14, male, native of Luxembourg, was admitted to Evacuation Hospital 18, January 8, 1919. With a group of boys he had been play-

ing with a hand grenade which exploded; a fragment of the grenade passed into the globe at the limbus, externally, involving cornea, iris, ciliary body and lens. There was prolapse of considerable portion of ciliary body, a soft eyeball with the fragment lodged in vitreous, vision destroyed except for perception of light. An enucleation was done immediately. Recovery uneventful.

Case 2.—H. E. S., male, aged 27, admitted to Evacuation Hospital 18, December 12, 1918. Men had been amusing themselves by throwing percussion caps on the stove in the barracks and watching them explode.

There was a piece of brass lodged on iris below the pupil and near the angle of anterior chamber. The point of entrance was in the center of cornea. The F. B. was removed with iris forceps through an incision within the cornea.

The patient was evacuated four weeks later with a quiet eye showing only a leucoma in center of the cornea.

Case 3.—W. S., aged 4 years. December 14, 1920, while playing with brother thrust a pair of manicure scissors through the cornea of the right eye. The boy was seen three hours later. The wound in the cornea was in the superior external quadrant. The iris was adherent to posterior corneal surface at site of injury, and the upper half of anterior chamber was absent. This patient's age made an anesthetic necessary several times to carry out treatment. Atropine, cold compresses and protective dressing were used. December 15th the anterior chamber had entirely reformed and a good dilatation of pupil had been obtained.

On January 13, an atropine catarrh had developed and scopolomine was substituted. February 15th all treatment discontinued and at present eye is quiet. A large leucoma of cornea remains, but a good reflex from pupil around this.

Case 4.—E. G., colored, aged 30, came to Swope Settlement Clinic, August 8, 1920. Ten days earlier had been kicked in the right eye during a negro brawl at Dubuque, Iowa. She was in a hospital there for a week, and then came to Kansas City. She visited an eye clinic here and was told that the eye was lost and advised to have an enucleation.

There was present chemosis and extensive subconjunctival hemorrhage. The anterior chamber was completely filled with clotted blood, and there was a rupture of the sclera superiorly, concentric with and about 4 mm. posterior to the limbus. Vision nil.

Under treatment the clot in anterior chamber gradually absorbed until it was possible to determine that the lens had been dislocated upward, the lower border being visible at upper part of anterior chamber. Also there was a large traumatic coloboma of the iris above. The vitreous was filled with blood.

At the end of two months the blood had been entirely absorbed and the eye was quiet. The patient was discharged October 22, 1920, with a vision of 20/100 with the following lens: Plus 8.00Ds=Plus 1 Dc axis 45 degrees.

608 Commerce Building.

THE IMPORTANCE OF OPHTHALMOSCOPIC EXAMINATION IN CHILDREN

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ST. LOUIS

The ophthalmoscopic examination is becoming a part of the routine examination in most hospitals for children, but as yet a great many

physicians neglect this helpful aid in their daily practice. It is for this reason that I wish to point out some of the conditions in which the eye-ground examination is of value and should be made.

The technique used in children varies from that used in adults, for in the case of a child we have little or no co-operation on the part of the patient. I have found the following to be the best method of procedure: About one hour before the examination the pupils should be dilated with one drop of $\frac{1}{4}$ per cent. atropin.* During the examination the child is placed upon the examination table, the room is darkened, and the child is allowed sufficient time to overcome any fear he may have. It should be given the ophthalmoscope to hold, as oftentimes the light itself will frighten him if turned on too suddenly. Once the fear is overcome the examination is begun. Instead of trying to have the child fix his eyes on any particular object, he is allowed to roll his eyes as he pleases, the examiner focusing upon the retina. After a while the optic disc will roll into position and a good look at the fundus may be had.

The following conditions present interesting pictures, at times diagnostic in themselves, and often-times of great value in differential diagnosis.

Tuberculosis.—Tuberculosis may manifest itself by a chorioiditis, retinitis, hemorrhage, or tubercle formation. A tubercle appears as a white spot in the retina, about one-third the diameter of the disc in size, appearing to divert a blood vessel from its normal course. A healed tubercle appears larger, the retina exposed in the center as an irregular mass. The frequency of tubercles of the chorioid is in direct proportion to the extent of the disease. They were present in 4 out of 48 cases of tuberculous meningitis, and were found in three cases out of four in generalized military tuberculosis without meningeal infection. Retinal hemorrhage without an apparent cause should lead one to suspect tuberculosis.

Hereditary Syphilis.—The common finding in infancy is a mild neuritis. In childhood we find a perivasculitis, and not infrequently an optic nerve atrophy. The perivasculitis presents an interesting picture. The arteries stand out as white strands, through which the blood current can no longer be observed. Chorioiditis, or retinitis is uncommon. Punctate pigmentations are seen, especially near the periphery.

Cardiac Conditions.—A rather interesting picture is present in cardiac conditions re-

gardless of the type of lesion, and that is a mild neuritis. In aortic regurgitation the vessels are tortuous, and the arteries are seen to pulsate.

Otitis Media.—In the chronic cases where the patient complains of an impairment of vision, we may find upon examination a progressive neuritis, or a choking of the disc. This means that the abscess has extended within the cranium, giving rise to a localized abscess or a meningitis. In sinus thrombosis a mild degree of neuritis is seen.

Blood Diseases.—In the severe anemias the fundus appears pale, and is often covered with retinal hemorrhages. Severe anemias are characterized by a pale fundus, the vessels standing out as pale strands. In purpura hemorrhagica the hemorrhages are very extensive, accompanied at times by an inflammation of the disc. In leukemias pale spots are seen surrounded by a bright red ring.

Infantile Chorioiditis of Unknown Origin.—This is a rare form of chorioido-retinitis disseminating in type, the origin of which is unknown. The prognosis depends upon the amount of destruction. In two cases of the above, both infants apparently were blind.

Encephalitis Lethargica.—In 50 per cent. of fourteen cases examined there was a mild degree of neuritis, which improved as the general condition of the patient improved. In those cases where a sclerosis followed the encephalitis, the neuritis remained.

Hydrocephalus.—In those cases where the fontanelles are not closed no abnormal findings are present. When the disease comes on after the sutures are closed, it ends in optic-nerve atrophy.

Brain Abscess.—When present there is a progressive neuritis leading to a marked choking of the disc. It may be homo, contra, or bi-lateral.

Brain Tumor.—There is a marked choking of the disc, at times leading to atrophy. The choking being unilateral at first, later becoming bilateral.

Epidemic Meningitis.—At the onset there is a mild degree of neuritis, which improves if the child's condition improves. If drainage is blocked, or the exudate is thick, resulting in an increasing intracranial pressure, the neuritis will be progressive, resulting in a choking of the disc.

Idiocy.—In the type of idiocy known as amaurotic family idiocy the typical cherry red spot surrounded by a white area is found in the area of the macula lutea. Aside from this form and those forms caused by a sclerosis where a mild degree of neuritis is seen, eye-ground examinations are of no clinical value.

Diabetes and Nephritis.—In four cases of

*Care must be exercised in the use of atropin. The medicine should be dropped into the outer part of the conjunctival sac, so that the excess will run toward the temple; at the same time the lacrimal puncta should be closed by pressure with the finger. Used in this way, atropin in a one-fourth per cent. solution should not cause toxic symptoms.

the former, and six of the latter, in no instance did I find anything abnormal. Retinitis and chorioiditis have been described.

Pigmentations.—A rather common finding in children is peculiar black pigmentations. They appear as black dots, often as crescents, in groups of two or three. So far as I was able to study them they had no clinical significance, aside from those which gave a positive Wassermann.

Influenza.—Retinal hemorrhages are frequently seen in severe cases.

Conclusions.—1. Ophthalmoscopic examination, owing to its importance, should become a part of a routine examination.

2. It is important as an aid in making a differential diagnosis between encephalitis lethargica and tuberculous meningitis.

3. There is a form of chorioido-retinitis in infancy with an unknown etiology.

4. It is of additional evidence in the diagnosis of lues, tuberculosis, meningitis, brain abscess, tumors, and blood diseases.

5. It is oftentimes diagnostic in itself, e. g., in milary tuberculosis or in amaurotic family idiocy.

Lister Building.

SOME OBLIGATIONS OF PHYSICIANS AND SOME PROBLEMS OF THE MEDICAL SOCIETY*

President's Address

W. W. GRAVES, M.D.

ST. LOUIS

With mingled feelings of humility, gratitude, and responsibility I accept the presidency of the St. Louis Medical Society, and I shall try to become fully conscious of the duties of this office. The years have brought with them great advances in medical knowledge and consequently ever-increasing obligations to the medical profession. It is the prime purpose of this Society to help its members meet these obligations. Let us briefly consider some of the obligations of the physician, and outline some of the problems confronting this Society.

The Obligations of the Physician

So long as a physician exercises reasonable skill in his professional capacities, and so long as he conducts himself as does the average citizen, he has the right to exercise the functions of a physician without let or hindrance. Under the laws of this and other civilized countries singular powers, privileges and op-

portunities are delegated to the physician, and because of these he is under singular obligations. How well physicians have discharged their obligations is evidenced by their past achievements and present activities. Through their services in the cause of humanity, physicians have merited and have held the confidence of their fellow-men. On entering the medical profession every physician tacitly obligates himself to further its aims and ideals in the following directions: 1. By striving to recognize disease and the conditions underlying it. 2. By trying to aid nature in the cure of disease and by trying to relieve suffering. 3. By endeavoring to prolong life. 4. By trying to bring about healthful conditions in the individual, in the home and in the masses. 5. By working singly and with others for the prevention and control of disease and for the promotion of health.

The capacities of a physician of the present day are recognizable by the effort he makes in furthering such aims and ideals as these. That member of this Society who most nearly discharges his obligations to the members of his profession, to his patient and to the public, is he who best obeys and upholds moral laws and the laws of the land as expressed in good citizenship; who adheres to the principle of the Golden Rule as re-expressed in the Principles of Ethics of the American Medical Association; who remains alive to existing medical knowledge, and, when possible, contributes to it; who gives to each patient the best that is in him, and who heartily co-operates in the health activities of the United States, state and city authorities in their efforts and in all other well-directed efforts tending toward the prevention and control of disease and the promotion of health.

I have outlined what seem to be some of the aims and ideals of modern medicine, also what seem to be some of the obligations of the individual members of this Society in furthering them. Is there one among us who can claim perfection in complying with any of them? Perfection is never attained by any man in any line of endeavor. The natural tendency of mankind is to move in the direction of the least resistance. No other individual better knows the inertia of human nature and of his own nature than does the physician. Therefore every one of us engaged in the practice of medicine needs to keep ever before him the physician's obligations. Unquestionably the past achievements and present activities of our own members are comparable with the best endeavor anywhere in the medical world. But cannot each one of us become more fully aware of the physician's obligations, and try just a little harder to meet them?

*Read at the Annual Meeting of the St. Louis Medical Society, January 3, 1922.

An enlightened public is rapidly fixing its gaze on all those exercising the functions of the physician, and it is measuring, weighing and judging them. It does not demand perfection from any man or woman exercising these functions, but it does demand reasonable efficiency and reasonable skill. It demands nothing short of one's best effort in the discharge of a physician's obligations. Public opinion expressing the voice of humanity demands, the glorious achievements of past generations and of the present generation of physicians demand, and our own consciences demand, that we try harder than ever before to discharge our obligations in furthering the aims and ideals of our profession. Therefore, on the threshold of this New Year, let us renew our obligations to each other, to our patients and to the public we serve, and let us renew our fealty to the St. Louis Medical Society, to the Missouri State Medical Association and to the American Medical Association.

Some of Our New Problems

The problems of this Society are various and may be designated the old, yet ever new, and the new. Among the new problems confronting us none stands out more clearly at this time than that of welcoming and entertaining the American Medical Association next May. On four previous occasions, namely in 1854, when our own Charles A. Pope was President, in 1873, in 1886 and in 1910, this city and Society welcomed and entertained the American Medical Association. Through the efforts of the officers of this Society, of the Missouri State Medical Association and of the St. Louis Convention Publicity and Tourist Bureau, we are again to have this privilege. The American Medical Association, now numbering more than 85,000 leading physicians representing practically every hamlet, town and city in the country, has become a great power for human advancement. No greater privilege can come to the citizens of any community or to the membership of any medical society than that of welcoming and entertaining this, the most useful of all medical organizations. It may be stated without fear of contradiction that the American Medical Association has done more to raise the standards of education in our medical schools, more to further post-graduate medical work, more to promote the aims and ideals of physicians everywhere, more to awaken medical and public interest in public health matters and more to further human advancement than any other single, similar organization in human history. Let each member of this Society henceforth consider himself appointed a committee of one, whose duty it is to co-operate with

the Local Committee on Arrangements to the end that we may welcome and entertain the American Medical Association in a fitting manner and in a manner commensurate with the well-earned reputation of our membership and of our citizens for hospitality.

A problem which soon must engage our earnest consideration is that of a new home for the Society and its library. The Bartscher auditorium has a seating capacity of less than one-fourth of our present total membership. While we have had only an average attendance of 120 at our regular meetings for the past five years, yet on several occasions, especially when out-of-town guests were present, there has not been even standing room. When all of our members become fully alive to the usefulness of this Society, as they surely will in the not distant future, our seating capacity is bound to be wholly inadequate at every meeting.

Our library is one of the most complete and therefore one of the best reference libraries in the country. It numbers at the present time approximately 21,000 volumes, and it has had for the past five years an average yearly increase of approximately 1,000 volumes. It is shelved from garret to cellar in a building far from fireproof and in one poorly adapted to the needs of a library. At any moment our library may go up in smoke. There is at this time little space remaining for book-racks. If the building is not now actually unsafe from the weight of its contents it may soon become so. Our library is one of our best assets, but its potentialities cannot be measured in dollars and cents. It is an ever-increasing storehouse of knowledge available to every member of the Society, to medical students and to medical St. Louis in general. It is our bounden duty to conserve it for our own use and for the use of succeeding generations of St. Louis physicians. No one can question the usefulness of the library, or the urgent need of its adequate conservation, nor can anyone question the inadequacy of our present quarters either for the library or for the medical society. Our need of a new medical building has already provoked considerable discussion and we must encourage still more. In this connection attention is called to the thoughtful letter of Dr. Walter H. Fuchs in the *Bulletin* of November 24, 1921. Perhaps we cannot hope to erect a new building during the present year, but we can begin discussing it and planning for it. With the consent and advice of the Council a special committee will be organized at once for the specific purposes of investigating our needs and of making recommendations in reference to a new medical building.

Some of Our Old, Yet Ever New, Problems

The old, yet ever new, problems of the Society are as old as medical organization. They were never more vital and their consideration never more urgent than at this time. Every administration of this Society, since its organization eighty-five years ago, has coped with them. They are still with us and they will continue to engage the consideration of St. Louis physicians in the years to come. The present excellent condition of this Society is due solely to the earnest work of previous administrations and of the membership in meeting the new problems as they arose and in grappling with the old. These old, yet ever new, problems are outlined in our constitution and are, therefore, mandatory. We may summarize them as follows:

1. To bring together into one organization all the physicians in St. Louis who are eligible for membership.

2. To promote the advancement of medical and collateral sciences by full and free interchange of views during our meetings.

3. To elevate and make effective the opinions of the profession in scientific, legislative, public health, material and social matters.

These mandates of our constitution, affecting as they do the welfare of the individual member, our Society and the public, receive consideration during our regular meetings throughout the year. Our by-laws provide for nine standing committees each of which serves some important function in carrying out the mandates of our constitution. Let me refer to the work of some of these committees, and first of all to that on membership. There are more than 1,800 legally registered physicians residing in St. Louis, but only approximately 1,000 of these are members of this Society. It is estimated that there are at least 500 fully qualified physicians in St. Louis who are not now members. The membership committee will endeavor to bring into this Society all physicians in St. Louis capable of meeting the requirements of our by-laws and it will ask the co-operation of every member of the Society to this end. Numbers alone are not desired, for there is both strength and weakness in numbers, hence proper qualifications should be the first consideration. Membership in this Society is a badge of honor and should be zealously guarded as such by every one of us. Moreover, in proposals for membership we must not forget that the St. Louis Medical Society, the Missouri State Medical Association and the American Medical Association stand as sponsors for the moral qualities and professional capacities of old and new members alike.

To the program committee is delegated the

arduous task of bringing to the attention of the Society those matters tending to further its usefulness to the membership and to the public and tending to further the usefulness of every one of us in our daily contacts. Obviously the function of this committee is informative and educative. How well it functions in these directions is evidenced by the general excellence of our programs. They do contain a fund of information of great educational value for the continuous growth of the family physician and the specialist alike. They do afford a kind of post-graduate instruction needed by every one of us. Our programs reflect not only the best local efforts, but through them during recent years an ever-increasing number of invited guests have helped to enlighten us. What, then, can we say of the average attendance at our regular meetings. The Bartscher Auditorium is usually filled to standing room capacity when our programs are supplied by invited guests, but it is a painful fact to relate that when our programs are supplied by our own membership there are usually many vacant seats. A few figures may help us to appreciate the matter of attendance and cause us to ask ourselves some questions. During the past five years we have had an average yearly total membership of approximately 910 and an average attendance at our regular meetings of approximately 120. These figures mean that only 13 per cent. of our average total membership during the last five-year period has attended our regular meetings and this, too, notwithstanding the unusually large attendance when out-of-town guests were present. No one can question the general excellence of our programs, reflecting as they do medical endeavor comparable with the best anywhere. Why then, one may ask, is our average attendance so small when our programs are supplied by our own members? Can it be that inertia, but only in reference to attendance, has so benumbed us that we need the stimulus of an out-of-town guest to fill our auditorium? Or can it be possible, as has so often been whispered, that we are lacking in proper appreciation of the capacities and achievements of our own members? Let each of us answer these questions as he may. No one will ever again ask them if every one of us will try just a little harder than ever before to acquire the good habit of every-Tuesday-evening-Medical-Society attendance.

The function of the health and public instruction committee thus far, like that on program, has been largely informative and educative. It is through the activities of this committee that our Society has yielded and will continue to yield great influence in combating adverse and in promoting proper legislation

affecting "public policy" and "sanitary, hygienic and medical conditions." These have been and will continue to be fields for its usefulness. But, through enlarging the activities of our Committees on Health and Public Instruction and on Publicity our Society may become more and more intimately associated with the work of sixty or more of our city's charitable, philanthropic and civic organizations now engaged, in one way or another, in the promotion of public health and human welfare in general. We may work with and assist these social organizations in many ways and particularly in the use of our common weapon—education. "Ignorance of the laws of health, of the cause of disease, of how to avoid epidemics; ignorance of how to take care of children in the perilous periods of infancy; ignorance of how to secure the proper medical aid in case of sickness and how to take care of one's self when ill—ignorance in one form or another is probably the most potent of all of the allies of the angel of death," said S. J. Holmes recently. The public naturally looks to physicians for enlightenment, guidance and co-operation in all public health matters. We cannot stand aloof and delegate these duties to others. The prevention of disease and the promotion of health in the masses, as well as in our own patients, are integral parts of our work.

The Y. M. C. A. has recently appealed to this Society for speakers to appear before industrial workers in St. Louis on public health questions, and our health and public instruction committee has called for volunteers. We may well consider establishing a speakers' bureau under the auspices of this Society and under the direction of either its Committee on Publicity or on Health and Public Instruction. Thus enlarging the activities of one of these committees the usefulness of the St. Louis Medical Society to the public would be greatly increased. There is bound to be ever-increasing demand for members of this Society to participate as co-workers, leaders and educators in the public health movement. Let us welcome this demand and prepare to meet it.

Man is a social being and physicians are very, very human. One of the needs of our Society, made mandatory by our constitution, is some means of bringing its members into closer, more intimate relationship. If we are to work with each other in the cause of humanity we must know our co-workers. Nothing promotes co-operation, that basis of all good work in a society such as ours, like knowing each other. Not only should the older members become better acquainted, but we should devise some means whereby the new members may speedily become living and ac-

tive factors in the work of our Society. Might not the hospitality committee formally present new members during our regular meetings, and then through personal introduction make them feel that they are integral parts of our organization? The sentiment has often been expressed that we should have during the year at least one social meeting in addition to the annual meeting. The hospitality committee might well devise some plan whereby our mothers, wives and sweethearts might join with us in some kind of festivity which would not only help us to forget the cares of the day, but would also tend to promote those kindlier feelings engendered only by acquaintanceship.

There is still another way in which we may increase the usefulness of our Society, and that is through more sympathetic interest in our sick and in our dead. It is in these trying situations of life, to which the physician and his family are not immune, that our Society through its committees should be quick to discern distress and relieve it as far as possible with the spirit of sympathy and helpfulness.

Having indicated some of the obligations of the physician and having pointed out some of the Society's problems, let us consider in conclusion

The Spirit of Co-Operation

The present usefulness of the St. Louis Medical Society is due solely to that spirit of co-operation which has been manifest throughout the many years of its existence. The administration ending this evening has been one of the most successful in the Society's history and its splendid achievements were wrought through the spirit of co-operation. This spirit is becoming more and more a living force in the affairs of men. The present state of civilization has come about through the spirit of co-operation. Without it there can be no permanence to our institutions; no human advancement. This spirit is a social instinct capable of continuous development in the vast majority of human beings. It is nowhere more manifest among men than in the members of our profession. When one co-operates with his fellows for the common good, the spirit of charity, good-will or altruism holds sway and that of envy, jealousy or selfishness becomes subordinated. If we would maintain and possibly advance the usefulness of our Society; if we would further the aims and ideals of our profession, we must continue to grow in individual efficiency and continue to grow in the spirit of co-operation. Fellow-members, those in whose hands you have placed the affairs of the St. Louis Medical

Society for the ensuing year ask of you one thing, and one thing only—whole-hearted, unstinted co-operation.

727 Metropolitan Bldg.

FURTHER REPORT ON THE WASSERMANN TEST AT THE MISSOURI SCHOOL FOR THE BLIND

H. D. LAMB, M.D.

ST. LOUIS

It is unfortunate that so little interest is taken, as a rule, in ascertaining the causes of blindness as far as possible in those who have hopelessly lost their sight, or in those who never possessed any. When any or further treatment will evidently prove futile the specialist usually spends but little time in studying the condition of these "darkened windows." Of course, some eyeballs, notably those of marked phthisis, present very little of interest to study. Nevertheless the accurate examination of blind eyes in many cases gives the observer new ideas of ocular-pathology; in time it cannot help but lead to more effectual prevention of blindness.

Dr. J. W. Charles as oculist at the Missouri School for the Blind has upheld only the highest standards in the examination and tabularization of findings in students at this institution. He deserves the credit of being the first to have the Wassermann test performed as a routine on scholars in a school for the blind.

There was published in 1918 in the Archives of Ophthalmology under the authorship of Dr. Charles and myself the first report of results from Wassermann blood-tests in the Missouri School for the Blind. In all, the results of the Wassermann test in 112 scholars were given, of which 96 were negative and 16 positive. It is interesting that among the latter there were 5 positives in 5 cases of retino-choroiditis present in the school and 5 positives among 17 cases of optic atrophy (actually 5 positives out of 14 cases of optic atrophy since 3 declined the test). Of the remaining 6 positives, 2 were among 16 cases of congenital malformation permitting the test, 1 was in the 1 case of parenchymatous keratitis, 1 among 7 cases of progressive uveitis, 1 among 30 cases of ophthalmia neonatorum submitting to the test and one in an unusual case of albuminuric detachment of the retina. The number of blind under each diagnostic cause was further divided in that article into the number of urban or those coming from towns of over 30,000 (of which there are but 5 in this state, St. Louis, Kansas City, St. Joseph, Springfield and Joplin) and the number of rural from places of less than 30,000.

Since the publication of that report, in this interval of three years, 52 new applicants have entered the Missouri School for the Blind. The report on these new students is given below on the causes of their blindness, the results of the Wassermann blood-tests and whether applicants came from urban or rural districts (urban—from towns of 30,000 or more). The ages of these 52 students varied between 7 and 36 years, all but 4 being 21 years or under.

The Wassermann tests were performed previously through the kindness of the Washington University Laboratory of Serology, but in the last year and one-half through the very helpful co-operation of Dr. Geo. Ives. Practically all the tests were made on the blood, although a few where negative were repeated on the spinal fluid.

Disease	Total Cases	Declined Test	Negative	Positive	Urban	Rural
Ophthalmia neonatorum.....	6		6		3	3
Corneal ulceration.....	4		4			4
Parenchymatous keratitis.....	2		1	1	1	1
Trachoma.....	3		3		1	2
Malformations (congenital)...	5		5		2	3
Simple trauma.....	4	3	1		1	3
Sympathetic ophthalmia.....	3		3		1	2
Congenital cataract.....	6	1	5		2	4
Progressive uveitis.....	3		3		1	2
Retinitis pigmentosa.....	1		1			1
Retinal degeneration.....	3	2	1		1	2
Optic atrophy.....	8	2	3	3	6	2
Retinal detachment.....	1	1				1
Congenital amblyopia.....	2		2		1	1
Progressive myopia.....	1		1		1	
	52	9	39	4	21	31

The case of parenchymatous keratitis giving the negative reaction has the typical facies of congenital syphilis — prominent forehead, marked frontal eminences and depressed bridge of the nose.

Combining the two reports then we can make a table of those diagnostic causes in which the positive Wassermann results occurred and appeared to be of evident etiological significance.

Disease	Total Cases	Declined Test	Negative	Positive	Percent. of Positives
Retino-choroiditis.....	5			5	100%
Parenchymatous keratitis...	3		1	2	67%
Optic atrophy.....	25	5	12	8	40%
Progressive uveitis.....	10		9	1	10%
Malformations (congenital)	26	5	19	2	10%

(The percentage of positives is computed on the number of those taking the test and not on the entire number of those under any diagnostic cause.)

Among the entire number of 189 scholars in 155 the Wassermann test has been made

to date. Of this 155 there are 19 (the extra one is the case of parenchymatous keratitis giving the negative reaction—but undoubtedly luetic) or 12.3 per cent. in which syphilis appeared to be of evident etiological significance.

Of course our numbers are very small, but we believe, nevertheless, that they have some value. This is truly but a beginning, but if all schools for the blind would examine their applicants in the same manner, it would not be long until some very valuable if not quite definite conclusions could be drawn.

The only report in the literature analogous to this one is that of Igersheimer in the *Klinisch. Monatsblatt. für Augenheilk.*, 1911, page 741, entitled, "Syphilis as the Cause of Blindness in Young People." He reported the number of luetics among 187 pupils in The Institute for the Blind at Halle, as determined by the Wassermann test. All examined were under 20 years of age the author states. He found in summary that syphilis played an etiological role in 13.4 per cent. of the 187 examined.

Among the cases of retino-choroiditis, 9 in number, in 77.7 per cent. was lues the cause. The author adds that the serological examination of the blood is an important aid in the differential diagnosis between retino-choroiditis and retinitis pigmentosa. Optic atrophy was found to be probably due to syphilis in 25.9 per cent. of those cases. No positive Wassermanns were found among the 12 cases of congenital cataract or 13 cases of retinitis pigmentosa.

The author adds that the number of blind from ophthalmia neonatorum was 14.4 per cent. of all the 187 cases observed, so that venereal disease was the cause of blindness in 27.8 per cent. of his cases.

In our combined study among 189 pupils there were 41 cases of ophthalmia neonatorum or 21.7 per cent. which would make 34 per cent. or one-third of all the cases due to venereal disease.

In this connection it is interesting to note that there have entered in the last three years but six cases of ophthalmia neonatorum among 52 new applicants or 11.5 per cent. This is about one-half of the usual number that prevailed before the laws for ocular prophylaxis in the newborn were passed.

I wish to express my indebtedness to Dr. J. W. Charles, oculist at the Missouri School for the Blind, for his kindness in permitting me to make this report.

Since the above writing there have been 28 new pupils enter the school, of whom blindness was due to optic atrophy in three cases, ophthalmia neonatorum in four, congenital cataract in five, uveitis in two, trachoma in

two, simple trauma in two, sympathetic ophthalmia in two, congenital malformations in six, retinitis pigmentosa in one, and parenchymatous keratitis in one. Among these new cases the Wassermann blood test gave a four-plus reaction in the case of parenchymatous keratitis and a "doubtful" result in one case of congenital cataract.

826 Metropolitan Bldg.

FUNDAMENTAL FACTORS IN THE CONTROL OF TUBERCULOSIS.—The campaign for the control of tuberculosis Henry Boswell, Sanatorium, Miss. (*Journal A. M. A.*, Aug. 13, 1921), says is one of education and not of quarantine. It must extend over a long period of time and on a big scale. It must take cognizance of the fact that as the disease decreases, the fight must be more carefully made, because our race becomes one of nonimmunes. It will require constantly increasing sums of money, which must be secured from the public. It can be secured only by keeping in touch with the people, to insure their co-operation. To do this the workers must not travel too far ahead of public sentiment, nor forget public ideals. No campaign can be successful unless it is a part of a general health movement, co-ordinated with the various bureaus of the health department, subservient to the general health movement, and co-ordinated, further, with all welfare agencies and the Bureau of Animal Husbandry. The educational system must include the extension department of the bureau, keeping in touch with the tuberculous population, presented to them in their own language, catering to their ideals, and to local and sectional peculiarities. The sanatorium is the fountain head from which all this should flow and through which public sentiment for the final work may be crystallized. The sanatorium is a failure, as far as the prevention of the disease is concerned, unless it is operated as an educational institution rather than as a hospital. A place must be had where the indigent tuberculous population may be cared for during the remaining days of their lives, in order to protect an increasing large number of the "nonimmune" race from the dangerous carrier.

INCREASED AMOUNT OF URIC ACID IN BLOOD IN TOXEMIAS OF PREGNANCY.—In the blood of patients with eclampsia, hyperemesis gravidarum, and with the symptoms of preeclamptic toxemia together with arterial hypertension, J. Lisle Williams, Chicago (*Journal A. M. A.*, May 7, 1921), has found the uric acid markedly increased. Delivery and recovery from the symptoms are associated with a gradual return of the uric acid in the blood to its normal amount. Arterial hypertension in pregnancy unassociated with toxic symptoms is not accompanied by uric acid retention. The toxic vomiting of pregnancy is associated with a marked increase of the uric acid in the blood, whereas the nervous or physiologic vomiting is not. It seems possible, therefore, to differentiate these conditions by quantitative estimations of the uric acid of the blood.

PERSONAL APPRECIATION OF WILLIAM OSLER.—J. M. T. Finney, Baltimore (*Journal A. M. A.*, Dec. 24, 1921), in the opening address in the Osler Memorial series, expressed a brief appreciation of Sir William Osler himself and a consideration of the influence exerted by him through his unique personality, and by his spoken and written words, on the medical thought and action of his time.

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OF THE

Missouri State Medical Association

MARCH, 1922.

EDITORIALS

ANNUAL MEETING TO BE AT JEFFERSON CITY, MAY 2, 3, 4

The date and place of the annual meeting have been changed by the executive committee from Excelsior Springs to Jefferson City, May 2, 3, 4. Some complaints from members that the date previously fixed was too near the date of the annual meeting of the American Medical Association and the fact that another meeting at Excelsior Springs conflicted with our date at that place, induced the executive committee to change the date and place of meeting.

Jefferson City is of course an ideal place for holding our meeting because of the excellent facilities for halls in which to hold our sessions, the capitol furnishing not only the senate chamber and the house of representatives for the larger gatherings, but numerous smaller rooms for committees, the county society secretaries, the council, and similar small meetings.

The program committee is industriously gathering together an excellent collection of papers to be read at the meeting, and we hope to have a large number of papers from members in the districts outside of St. Louis and Kansas City. Any member desiring to obtain a place on the program may address the secretary, giving the title of the paper.

CIRCUIT COURT RULES REFERENDUM INSUFFICIENT. APPEAL MADE TO SUPREME COURT

The report of the Special Master in Chancery, appointed to investigate the petitions of the referendum in the 4th District, was made to the Circuit Court at Jefferson City February 16, and the Court ruled that the petition in that district was insufficient and rendered a verdict for the plaintiff—a representative of the low-grade medical schools who sued for an injunction to prevent the bill from being placed on the ballot at the next general election. Our attorneys immediately took steps to perfect an appeal to the supreme court.

The investigation of the names on the petitions in the Fourth District revealed that 23 names would have to be eliminated, 19 having signed the petition twice, one signing

when under age, and three whose addresses showed that they were non-residents of the district. This left only eight names more than the required number, our attorneys having conceded the 23 names, but the report of the referee mentioned a large number of other names as improperly signed to the petitions and the court accepted the report without designating just where the other names to be ruled off appeared in the petitions. It will be recalled that the petitions in the 4th District contained originally only 31 more names than required by law to make the petitions effective.

We cannot now anticipate when the supreme court will pass upon the appeal, but in the meantime the medical college bill cannot go into effect and the state board of health will continue to operate under the law previous to the adoption of the bill.

A WARNING AGAINST FEE SPLITTING

At the recent meeting of the executive committee the question of secret division of fees was discussed which resulted in the committee adopting a resolution against the practice and directing that a copy be sent to every Councilor and component society. The resolution follows:

WHEREAS, It is reported that some members of our Association are practicing the secret division of fees in order to obtain patients, which practice is a violation of the by-laws of our Association and of the Principles of Medical Ethics, therefore be it

Resolved, That the Councilor of each district is hereby requested to warn the members of each county society in his district against such practice and that the component societies be notified that the executive committee warns them against permitting this practice among their members; be it further

Resolved, That the executive committee bring this matter to the attention of the Council at the annual meeting in May, 1922, for further action against such societies that fail to discipline their members for such violation of the by-laws and of the Principles of Medical Ethics.

During the discussion of this subject at the meeting of the executive committee it was pointed out that the practice of fee splitting was again becoming prevalent in some districts; that it had been almost entirely eradicated some years ago when the Association took a firm stand against it, and that if we do not again frown upon the practice at this time, when complaints are coming to the notice of the committee, we shall certainly risk serious discord in our organization.

As in all other movements this attempt to get "business" has its leaders. It is well known that large numbers of men would much rather follow than lead in almost any undertaking, hence the fee splitter soon finds himself the center of a group of morally weak, avaricious persons who grasp the opportunity greedily,

and a few otherwise honest men, so spineless that they succumb to the allurements of "easy-money" and salve their consciences with the thought that if they do not do it the other fellow will. But, let not such leaders think they can for long escape the condemnation of every right-thinking physician, for sooner or later they become marked men.

"THE CHILD IS FATHER TO THE MAN"

The lessons we learned about breaking colts and calves to halter, when we were boys in the country, we have been slow to apply to our problems in the prevention of juvenile delinquency. Percherons and Durhams were easy to train, but all humans do not correspond to these docile animals—and the neglected "woods colts" were prone to extraordinary deviations from this comparison. We were wise enough to begin the training early, but it is just now dawning upon us that we must get hold of our potential delinquents early if we are to develop in them habits of conduct consistent with the social life of the community. Habits are deep and narrow channels which deepen as life progresses and escape from them becomes more and more difficult.

These thoughts come to us in connection with the effort now being made to establish a psychopathic clinic in the Juvenile Court at St. Louis. The National Committee for Mental Hygiene has organized a Bureau for the Prevention of Juvenile Delinquency. They propose to send highly trained groups, consisting of a psychiatrist, a psychologist, a trained psychiatric social worker and a trained nurse, to those large cities which will undertake to continue the work after a demonstration covering a period of several months has been made. The Missouri Society for Mental Hygiene is naturally anxious that St. Louis shall be one of the cities chosen early, for we may confidently expect the demonstration of this work in the Juvenile Court to have its influence in extending the plan to the Domestic Relations Court and to the Municipal Courts.

Physical and mental disease and defect in children must be recognized, measured and, as far as may be, corrected if we expect to reduce adult delinquency.

NEWS NOTES

LORD ATHOLSTON, of Montreal, who has offered a prize of \$100,000 for a cancer cure, has given a second \$100,000 for cancer research work.

DR. H. E. PEARSE, of Kansas City, has been appointed a member of the City Plan Com-

mission by Mayor Strother to succeed Mr. Louis Oppenstein. The term is for 4 years.

A PHYSICIAN is needed at Tulip, a small town near Centralia. Any member interested in this location may obtain further information by addressing Mr. James G. Dry, Centralia.

THE committee on badges for the A. M. A. has forwarded to the officers at Chicago several designs, each one incorporating a portrait of William Beaumont, who performed many of his experiments on gastric digestion while a resident of St. Louis.

THE French Academy of Medicine, which has never included women in its membership, has voted that Mme. Curie, whose name had been proposed for membership, is eligible and it is expected that she will be elected at the next meeting of the academy.

THE Board of Trustees of the American Medical Association has appointed Dr. Wm. McK. Marriot, St. Louis, a member of the editorial staff of the *American Journal of Children's Diseases*, and Dr. Evarts Graham, St. Louis, a member of the editorial staff of the *Archives of Surgery*.

AN ordinance has been introduced in the Board of Aldermen of St. Louis providing for the sale of impounded dogs to the recognized medical schools in St. Louis to be used for scientific purposes in the teaching of medicine. A charge of seventy-five cents will be made for each dog delivered to the schools.

ON February 17 the superintendents and executives of reputable hospitals in Missouri met in St. Louis to organize the Missouri Hospital Association. Dr. A. R. Warner of Chicago, Secretary of the American Hospital Association, was the guest of the meeting and assisted in making plans for a permanent organization. The association expects to affiliate with the American Hospital Association.

ON February 22, Dr. Carl Barck, of St. Louis, by request, delivered an address before the physicians taking the Fuchs course of lectures on ocular pathology. The subject of Doctor Barck's address was "The Visual Pathways From the Eye to the Ultimate Center of the Occipital Lobe: The Organization of the Lateral; Their Importance for the Focal Diagnosis of Intracranial Lesions."

DR. W. W. GRAVES, president of the St. Louis Medical Society, delivered a five-minute talk, by invitation, at the meeting of the Teachers' Fellowship Society of St. Louis, February 18, on the subject, "What the Medical Society Means to a Physician." The Teachers' Fellowship Society is composed of teachers in the St. Louis public schools.

THE commercial and scientific exhibits at the meeting of the A. M. A. will occupy the first and second floors of the Moolah Temple, located on Lindell Boulevard, west of Grand Avenue. Here, also, will be located the department where members must register in order to receive the badges, programs and invitations to various entertainments.

THE *Bulletin* of the State Department of Health of New York says the death rate of New York State for 1921 reached the low level of 12.2 per 1000 of population. This rate compared with that of 13.8 for 1920 means that 16,000 more residents of New York are now living than would have been the case if the 1920 death rate had not been reduced as indicated.

THE committee on scientific exhibits for the A. M. A. would be glad to correspond with members and institutions who desire to exhibit specimens, photographs, drawings, etc., showing scientific interest. Dr. R. L. Thompson, University Club Building, St. Louis, is chairman of the local committee on scientific exhibits to whom the communications should be addressed.

A BILL has been introduced in the Kentucky legislature forbidding the use of text-books in the public schools in which the doctrine of evolution is taught. The movement is said to have been forwarded by lectures in the state by Mr. William Jennings Bryan. Protests against the passage of the bill have been sent to the University of Kentucky by prominent educators throughout the country.

DR. JOHN H. TIMBERMAN has acquired the office equipment and records of the late Dr. J. C. Shelton of Chillicothe. Dr. Timberman will limit his practice at Chillicothe to diseases of the eye, ear, nose and throat. He formerly practiced at Marston, where he lived for many years and was councilor of that district. He moved to Texas in the latter part of 1921, returning to Missouri to take over Dr. Shelton's practice.

ONE of the interesting features of the A. M. A. convention will be the clinics in the hos-

pitals and dispensaries of St. Louis. Dr. H. S. McKay, St. Louis, is chairman of the committee on clinics and is arranging a program that will offer a large variety of cases for the instruction of the Fellows. These clinics will be held during the days preceding the date of the convention and resumed again for several days following the adjournment of the A. M. A.

IF YOU expect to attend the convention of the A. M. A. at St. Louis you should make your hotel reservations at once. The advance reservations at this time are far beyond the number anticipated and in order to prevent disappointment when you arrive be sure to write your hotel and engage your room now. The secretary will be glad to assist members who are not acquainted with the hotel facilities. The list of hotels was published in our February issue.

THE health committee of the St. Louis Safety Council has appointed an advisory committee of ten physicians and two other citizens to assist in the work of educating the people in health protection. Those appointed on the advisory committee are: Dr. W. H. Fuchs, Dr. Martin C. Woodruff, Dr. H. W. Loeb, Dr. Nathaniel Allison, Dr. A. H. Hamel, Dr. E. J. Goodwin, Maj. L. P. H. Bahrenburg, Dr. John Kennerly, Dr. J. P. Harper, Dr. E. Willette, Rev. George W. Dodson and Judge S. S. Bass.

MEMBERS who anticipate attending the meeting of the A. M. A. in St. Louis next May should make sure that they are Fellows of the national organization in good standing. Only Fellows may take part in the proceedings of the A. M. A. Those who are not Fellows but would like to enjoy that privilege must apply for Fellowship on a blank that will be supplied by the secretary of our Association or by the secretary of the A. M. A. Only members of our Association are eligible for Fellowship in the A. M. A.

A SPECIAL rate of one and one-half fares has been announced for the round trip, going and returning the same route, for the convention of the A. M. A. at St. Louis, May 22-26. In order to secure the rate the purchaser must present an identification certificate to the ticket agent when buying the ticket. Identification certificates may be obtained from Dr. A. R. Craig, Secretary American Medical Association, 535 N. Dearborn St., Chicago. When making the request please enclose a self-addressed, stamped envelope for reply.

PHYSICIANS in Independence are planning for the establishment of a county hospital for Jackson County. Dr. N. P. Wood, of Independence, was elected chairman of the organization formed to push the campaign for a bond issue that will be necessary to raise funds for the construction of the hospital. It was first proposed to establish the hospital for the use only of persons living in the county outside of Kansas City, but the new plan proposes to extend the benefits of the institution to the people of the entire county, including Kansas City. The amount of bonds to be voted will be \$500,000.

ON the invitation of the Ophthalmic Section of the St. Louis Medical Society, Professor Ernest Fuchs of Vienna, the celebrated ophthalmologist, is in St. Louis giving a course of lectures on ocular pathology. Over eighty physicians have subscribed to the course which began February 6 and will extend over a period of five weeks. The Ophthalmic Section entertained Professor Fuchs at a dinner on February 4 and again at a luncheon on February 8, to which all the physicians attending the course were invited. On February 21 Professor Fuchs will deliver an address before the St. Louis Medical Society on "The Ophthalmic Signs of Arteriosclerosis."

OFFICERS in charge of the construction of the new Presbyterian Hospital, New York, visited St. Louis, February 4, and inspected the buildings of the Washington University Medical School, Barnes and Children's Hospitals. The visitors were Mr. Edward Harkness, Trustee Columbia University; Dr. Wm. Darrach, Dean of the College of Physicians and Surgeons; Mr. Gambel Rogers, architect for the new hospital; Mr. Wm. Sloan, President of the Presbyterian Hospital; Doctor Burlingham, Secretary Board of Trustees Presbyterian Hospital. Mr. Harkness has donated the ground for the hospital, formerly the site of the baseball park, which is valued at \$5,000,000.

A PSYCHIATRIC clinic to be attached to the Juvenile Court at St. Louis is being advocated by a number of St. Louis physicians and social workers. Dr. M. A. Bliss, of St. Louis, President of the Missouri Society for Mental Hygiene, told the gathering that the National Society for Mental Hygiene would co-operate in establishing the clinic if assurance were given that it would be maintained permanently. Through the Rockefeller Foundation, Dr. Bliss said, funds would be provided for sending to St. Louis a corp consisting of a trained psychiatrist, a psychologist, and social workers to

put the clinic into operation and to train persons for carrying on the work thereafter. The usefulness of these clinics has been proven in New York, Chicago, Detroit and other cities.

A NEW local anesthetic called *Butyn* is the discovery of Professors Roger Adams and Oliver Kamm of the University of Illinois and Dr. E. H. Volwiler of The Abbott Laboratories, Chicago. It has been passed by the Council on Pharmacy and Chemistry of The American Medical Association, Dr. A. E. Bulson, Jr., for the Committee on Local Anesthesia, Section of Ophthalmology, saying that it acts more rapidly than cocaine and that its action is more prolonged. Less is required, and in the quantity necessary to use it is less toxic than cocaine. It has other advantages which make it highly useful, especially for eye work. The Abbott Laboratories is supplying *Butyn* in tablets and in 2 per cent solutions, which may be had without narcotic blanks.

THE Missouri Hospital Association was organized at a meeting of the superintendents and executives of hospitals in Missouri, held at St. Louis, February 17. Dr. L. H. Burlingham, St. Louis, superintendent of Barnes Hospital, was elected president; Dr. B. A. Wilkes, St. Louis, superintendent of the Missouri Baptist Sanitarium, 1st vice-president; Miss Sarah H. Reitz, Mexico, superintendent of Audrain County Hospital, 2d vice-president; Miss Louise Ament, St. Louis, superintendent Lutheran Hospital, secretary. The purposes of the association as set forth in the constitution are: To promote the welfare of the people of Missouri, to develop hospitals and hospital service, to create efficiency in the various departments and to secure the co-operation of all other organizations engaged in the same work.

FROM *Science* we learn that, in addition to previous gifts to the building fund totaling \$800,000, Mr. Samuel Mather, of Cleveland, has announced to the trustees of Western Reserve University that he will provide funds for the erection of the new building of the school of medicine. The estimated cost of the school building is \$1,910,000, of the animal house \$93,500, of the power house \$473,000, and of connecting tunnels \$53,700, totaling \$2,529,700. Plans and specifications are complete and construction will begin in the near future. The medical school building is the first of a group, to be followed by the construction of the Children's Hospital, the Maternity Hospital and the Lakeside Hospital, all of which are affiliated with the school of medicine. The entire group will be situated on the university campus.

THE International Congress of Ophthalmology will meet at Washington, D. C., April 25-28. The official languages will be English, Spanish and French, obviously the languages of the greater part of those who could be expected to attend and take part in the proceedings. Each speaker in discussion may use such language as he prefers, but the substance of his remarks must be furnished for publication in one of the official languages of the congress. The congress has invited ophthalmologists to send specimens which may be used in the pathologic exhibit. The Army Medical Museum in connection with the Section on Pathology of the American Academy of Ophthalmology and Oto-Laryngology is preparing the pathologic exhibits. Specimens are invited either as an outright gift to the Army Medical Museum or as a temporary loan during the congress. These specimens should be plainly labeled, described fully, and sent to Major G. R. Callender, Army Medical Museum, Washington, D. C., Section on Ophthalmology.

FROM the *Bulletin* of the Academy of Medicine of Cleveland (Ohio) we note that a Christian Science practitioner was found guilty of practicing medicine without a license and was fined \$100 and costs. In passing judgment, Chief Justice John P. Dempsey stated that he was bound by the ruling of the Supreme Court of Ohio in the Marble Case, brought about fourteen years ago. At that time the Supreme Court held that under the laws of Ohio "the practice of Christian Science treatment is the practice of medicine."

Throughout the trial Judge Dempsey required that a definite distinction be made between Christian Science religion and Christian Science treatment.

By agreement between the attorneys for the defense and the public prosecutors it was agreed that a test be made on the constitutional question involved and the Christian Science attorneys were given every privilege to place in the record everything which they thought might assist them in their purpose which was "to contest the constitutionality of that decision (the Marble case), and in connection therewith, the construction of the statute, including Christian Science treatment within the definition of the practice of medicine." To this end the case will be appealed to the Supreme Court of Ohio.

Prior to the trial Christian Science interests requested of the daily newspapers that no notice of the trial be published and this request was complied with.

APPROPRIOS of the threat made by the superintendent of the Humane Society of St. Louis

to go before the next legislature and ask for the passage of a bill prohibiting vivisection, if the ordinance is passed in St. Louis permitting the sale of impounded dogs to reputable medical schools for scientific purposes, we reprint from *Science* the following letter addressed by Cardinal Daugherty, of Philadelphia, under date of December 30, 1921, to the Society for the Protection of Scientific Research:

"Having been asked to give an expression of opinion on the subject of vivisection, I deem it needless to say that, with you and all others opposed to cruelty of whatever kind, I deplore any use of vivisection that may cause unnecessary pain to lower animals.

"But as actually conducted for the advancement of medical research, vivisection seems to be not only unobjectionable, but even praiseworthy. Scientifically carried out, it is, as you know better than I, almost entirely confined to the inoculation of mice, rats, guinea pigs and rabbits, and is much less frequently practiced on cats, dogs, horses and other higher species of brute animals. Since the invention of anesthetics, and with the use of antiseptic methods, it has become practically painless. Animals used for experimental purposes are well fed and sheltered and in many respects are better off than those in a state of nature or in subjection to work. They escape the rapacity of fiercer and larger animals, the ill-usage of sport, the drudgery of toil, exposure to the heat and cold of the seasons, and the cruelties of keepers, drivers and exploiters.

"According to the law of nature, the lower species of creatures exist for the higher. The clod of earth supports the plant. The vegetable kingdom supplies the wants of the animal. The brute animal and all other inferior things are for the good of man, who was made directly for the glory of God. Man, then, may use all inferior things for his own benefit.

"We exterminate vermin and insects, roaches, mice, rats and serpents, for the sake of health, cleanliness and comfort. The children in our schools are taught to combat the plague of flies as carriers of noxious microbes. We kill animals, fowls and fish for our food. Fishermen bait fish with live worms.

"If, then, to preserve our health, to prolong life, and even to seek pleasure, it is permissible to inflict pain and death upon inferior forms of animal life, why

may not the scientific man, for the common good, experiment on lower animals, especially when he takes every precaution against unwarranted infliction of pain by the use of anesthetics and by antiseptic methods?

"Animals, themselves, owe to vivisection a great debt. Epizootic diseases, like anthrax, swine-fever, chicken cholera, silk-worm disease, cattle tuberculosis, which, in the past, caused untold suffering to animals, and every year killed them by millions, have been brought under control by the experiments of vivisection.

"But man is the chief beneficiary. For it has been mainly owing to these experiments that great discoveries have taken place regarding the nervous system, bone growth, the blood, digestion, infections, serums, antitoxins and vaccinations; and without vivisection little or no progress would have been made in physiology, pathology, bacteriology and therapeutics.

"To forbid vivisection would be to hamper science, do a mischief to the human race and foster misplaced sympathy."

OBITUARY

ULYSSES GRANT STRIEBY, M.D.

Dr. U. G. Strieby, of Brownington, a graduate of the University Medical College of Kansas City, 1892, died at his home, December 24, 1921, from pneumonia, age 56 years. Dr. Strieby practiced at Mt. Zion and Lowry City for several years before locating in Brownington. His life in Brownington was one of great service to all the people of that section and he had earned the esteem and love of a wide circle of friends and patients. He was a member of the Henry County Medical Society and the Missouri State Medical Association.

ROBERT G. KELLAR, M.D.

Dr. Robert G. Kellar, of Freeman, a graduate of the Kansas City Medical College, 1894, died at his home, December 21, 1921, from smallpox contracted while attending patients with the disease, age 55 years. During the recent epidemic of smallpox he had neglected to be re-vaccinated and supposing himself protected by early vaccination fell a victim to the scourge. Doctor Kellar was one of the most active practitioners of Cass County and was respected and esteemed by his fellow practitioners and the people generally. A tribute written by Mr. George R. Bennett described the esteem in which Doctor Kellar was held

and from that we quote a part of the account published in the *Pleasant Hill Times* as follows:

"We have just witnessed one of the greatest tragedies which has ever come to our community, or to any other, for the matter of that. Many years ago Dr. R. G. Kellar, with his fine young family, came to us and during these many years he has been a big factor in the development of this part of Cass County. At that time the late Dr. E. W. Schauffler, president of the Kansas City Medical College, said of Dr. Kellar, 'he is one of the best young doctors in Missouri.' Subsequent service to our people verified that assertion. Hardly a family anywhere near Freeman but what has been helped many times by him, not because he went at any hour of day or night, in all kinds of weather—that was his business—but that he took an especial interest in each case and gave it the full measure of his research and skill.

"I knew him as a little boy when he and his small sister would run to school, for it seemed they never walked, and in his school work he displayed the same characteristic for thoughtfulness that was to make his profession a success.

"In his service to our people he had contracted the 'flu,' which had bothered him for a long time. He had many cases of smallpox without contracting the disease, but, at last, the two together caused his death within a week."

He was a member of the Cass County Medical Society and the Missouri State Medical Association.

WILLIAM PORTER, M.D.

The numerous friends of Dr. William Porter, formerly of St. Louis but for the past seven years a resident of Ocean Springs, Miss., were grieved to learn of his death, which occurred on November 13, 1921. For many years Doctor Porter was a prominent figure in the medical life of St. Louis and Missouri, being a pioneer in the special field of tuberculosis and medical director of the State Sanatorium for Tuberculosis soon after it was established. He obtained his medical degree from the Jefferson Medical College in 1872 and spent several years abroad studying diseases of the ear, nose and throat, being an assistant to Sir Morrell Mackenzie and member of the house staff of London Hospital during part of this period. He also took special courses in Berlin, Paris and Vienna. He held numerous positions on the staffs of various hospitals and was prominent in the deliberations of a large number of medical societies, being a former president of the Mississippi Valley

Medical Association, Professor of Clinical Medicine in St. Louis University, Medical Director of Mt. St. Rose Hospital for Tuberculosis at St. Louis. He was an honorary member of the St. Louis Medical Society and the Missouri State Medical Association and an affiliate Fellow of the American Medical Association, the only Fellow elected to that classification.

CHARLES E. McBRIDE, M.D.

Dr. Charles E. McBride, of Webb City, died suddenly December 29, 1921. The doctor died literally "in harness" as his death occurred suddenly while at the bedside of a patient.

Doctor McBride was graduated by the Missouri Medical College in 1880 and practiced his profession almost continuously in Jasper County, forty years of his practice being spent in Webb City.

A number of years ago he was an active member of the Jasper County Medical Society but as he advanced in age he ceased to attend the meetings and was no longer actively affiliated with the Society; he was for a long number of years the county physician, holding the office under all the various changes of the county court as he was recognized as being peculiarly fitted to fill the office; his kindly expressions and deeds to the poor of the neighborhood endeared him to those people and his strict integrity protected the court from any suggestion of extravagance.

Modesty was perhaps his predominating characteristic. He was slow in expressing his opinion on subjects that agitated the community from time to time and yet all classes of people were anxious to have his approval of their various endeavors; his professional intercourse with his associate physicians was most happy, always ready to assist a brother physician and to uphold his colleague from any suspicion of incompetence or neglect made his services as a consultant in wide demand.

His sympathy and friendship for medical students and young physicians beginning practice was extremely marked; he was never too busy to consult with a young man in the study of medicine, advising and prompting him in a way that always meant good to the student.

In view of the many virtues of the deceased, the Jasper County Medical Society extend our deepest sympathy to his family whose bereavement is greatest, and to the public who will miss his many helps in his strict attention to their needs.

DR. L. C. CHENOWETH,
DR. R. M. STORMONT,
DR. B. A. DUMBAULD,

Necrology Committee, Jasper County Medical Society.

JOHN CASSELL ROGERS, M.D.

Once more we must record the passing of one of the grand figures in the medical history of Missouri. Dr. John C. Rogers, of Kansas City, whose semi-centennial in the practice of medicine was celebrated two years ago, died January 6, 1922. Doctor Rogers enjoyed the unalloyed friendship of the entire profession. He maintained a modesty that is rarely encountered. During the years of a large active practice he was faithful to the interests of his clientele and always enjoyed the ethical regard of his colleagues. He was at his office unto the last week of his life. He always regarded himself as a family practitioner and counsellor.

Doctor Rogers was born in Palmyra, Missouri, in 1842. His early education was acquired in the public schools and the University of Missouri, from which institution he received his bachelor's degree in the Civil War days. His medical education came to him in a country doctor's office where he studied under a preceptor for several years, and then entered the St. Louis Medical College, from which school he received his diploma in 1865. After his graduation he practiced medicine in Jackson County for all of half a century. In 1882 he was elected coroner of his county, which office he held two years.

Doctor Rogers was a charter member of this Society, of which we may say in passing, there are now but five of that charter membership left. Doctor Rogers deservedly held the friendship and good will of his fellow doctors.

We shall miss the Doctor and his geniality greatly. We extend sympathy and condolence to his daughter, Mrs. Lloyd F. Cockran, and family.

AMOS A. FREYMAN,
C. LESTER HALL,
WILLIAM F. KUHN,

Necrologic Committee, Jackson County Medical Society.

STEPHEN G. SMITH, M.D.

Dr. S. G. Smith, of Hannibal, one of the most widely known physicians of Marion County, died at his home after a short illness, age 76 years. He came to Missouri in early manhood after receiving an excellent education in Ohio, his native state, and located in Ralls County where he taught school for several years. In 1875 he "read medicine" in the office of Doctors Knox and Asbury, of Monroe County, and then entered the State University where he graduated in 1878. After taking post-graduate courses at the Bellevue Hospital Medical College he returned to Missouri and began practicing at Hannibal. A

man of very high integrity and strong moral character, Doctor Smith was held in high esteem by his fellow practitioners and a wide circle of friends. He was a member of the Marion County Society for a number of years, but poor health during the past few years induced him to sever his active membership with the Society.

LOUIS E. NEWMAN, M.D.

In the death of Dr. Louis E. Newman, of St. Louis, last November, the medical profession of that city and of the state lost one of the most devoted adherents of medical science, a skilled physician and a gentleman whose life has been an inspiration to many younger men of the profession, as well as a comfort to all whom he served. Born in St. Louis in 1861, a descendant of an old French family, he attended St. Louis University where he earned his A. M. degree and then entered the Jefferson Medical College, of Philadelphia, from which he received his medical degree in 1883. Immediately afterwards he went abroad where he studied for several years and returned to St. Louis splendidly equipped to enter upon the duties of the exacting profession he had chosen to follow. Doctor Newman was a member of the St. Louis Medical Society, State Medical Association and a Fellow of the American Medical Association, and active in all the movements for the improvement of the science and practice of medicine and the protection of public health. He was president of the St. Louis Medical Society during the World's Fair, 1904. He had practiced in St. Louis for 35 years, although during the last year of his life he had been incapacitated from a paralytic seizure.

MISCELLANY

MULFORD BIOLOGICAL EXPLORATION OF THE AMAZON BASIN

The arrival in Philadelphia of a second shipment of scientific specimens from the Mulford Exploration was announced December 27, 1921. The H. K. Mulford Company arranged for their clearance through customs and, in accord with Dr. Rusby's instructions, distributed them to specialists of the universities and museums who are co-operating in the work of this expedition.

Among the specimens returned are some lots of medicinal bark which have been sent to the Philadelphia College of Pharmacy and to Prof. C. B. Jordan, Purdue University, School of Pharmacy, for examination and study. A number of interesting specimens of fish were received and forwarded to Prof. C. H. Eigenmann of the University of Indiana, a recognized authority on South American fishes. A number of Batrachians were sent to Dr. C. G. Ruthven, of the University of Michigan, and a few reptiles to the American Museum of Nat-

ural History. Several hundred botanical specimens, including many curious and interesting forms, were included in the shipment and will be held until Dr. Rusby's return, when he will give them his personal attention and careful study.

The latest letters received from Dr. Rusby and his party were written October 21 and mailed from Rurrenabaque, Bolivia. Dr. Rusby and his party had at that time started out on the trip to Lake Rocagua and surrounding territory, with the expectation of finding much that was new, including geographical facts as well as biological and botanical specimens. Although all the maps of South America show the Rio Negro as the outlet of Lake Rocagua, their information was that no connection exists between the lake and the river, but that the river originated in a low range of hills situated near the lake.

Cable messages since received indicate the successful termination of their trip to Lake Rocagua and progress as far as Riberalta in Bolivia near the Brazilian border. All the members of the party were reported in excellent health and spirits except the director himself. Dr. Rusby had been suffering from infectious rheumatism brought on and heightened by the exposure and hardships of the life in the wilderness. It is probable that on account of the state of his health it may be necessary to abandon the second part of their trip up into Colombia, as contemplated in the original plans.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

- Benton County Medical Society, Oct. 21, 1921.
- Montgomery County Medical Society, Dec. 15, 1921.
- Chariton County Medical Society, Dec. 23, 1921.
- Clark County Medical Society, Jan. 13, 1922.
- Reynolds County Medical Society, Jan. 17, 1922.
- Camden County Medical Society, Feb. 8, 1922.
- Schuyler County Medical Society, Feb. 10, 1922.
- Perry County Medical Society, Feb. 13, 1922.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Third Meeting, December 12, 1921

1. EXHIBITION OF CASES.

A. CARCINOMA OF STOMACH.—By DR. D. KIDNER.

Mr. F., age 57, white, truck gardener, entered Barnes Hospital December 11, 1921, with a chief complaint of pain and a lump in the epigastrium, nausea, vomiting, weakness and loss of weight. Family history negative. Past history unimportant with the exception of long history of stomach symptoms. Present illness began 1900, when patient first had a sense of fullness, slight discomfort and belching following a heavy meal. Five weeks before entrance he was suddenly taken with a very severe pain in the epigastrium after eating a heavy meal. Patient induced vomiting and was relieved. Vomitus contained about two tablespoonfuls of fresh blood. The symptoms at time of entrance were weakness, dis-

comfort in epigastrium and loss of weight, and vomiting.

Patient was markedly undernourished and cachectic. Skin dry and inelastic. Marked evidence of dehydration, very pale mucous membranes. Voice weak and hoarse. All muscles flabby. Panniculus absent. Head was negative except coated tongue and carious teeth. *Neck.* Few palpable cervical glands. *Thorax.* Negative. Lungs were negative. Heart was negative except for rate of 110. Blood pressure 105/65. Radial pulse regular. Vessel walls thickened. *Abdomen.* Large mass could be seen occupying whole epigastrium between the xiphoid and the umbilicus 16 cm. transverse, and 12 cm. longitudinal diameter and projected above costal margin about 3 cm. The mass was hard, nodular and fixed. Some tenderness over it, but not marked. Traube's semilunar space obliterated. Kidneys, spleen and liver not palpable. Lower abdomen was tender, especially right lower quadrant. Genito-urinary organs and rectum showed no pathological changes.

Urine. Albumin, numerous casts. No sugar or diacetic acid found. *Blood.* R. B. C. 1,400,000. W. B. C., 8,400. Hemoglobin, 35 per cent. Differential normal. Wassermann negative. Electrocardiogram simple "tachycardia." Temperature 36 degrees to 38.5 degrees. Pulse 90 to 170. Respiration 20 to 34.

Night of entrance patient's stomach was emptied and 250 c.c. coffee ground, reddish material was recovered. No food remnants seen, some mucus, large amount of blood, free HCl, small amount; test for lactic acid strongly positive. Great numbers of *Op-Boas bacilli* present.

Course in Hospital.—Patient put on liquids and fed every three hours. Given 500 c.c. glucose intravenously for dehydration. Had considerable pain and was given morphia. Patient became very weak second day and a friction sound was heard over whole left axilla and moist rales heard over both bases. Pain in lower abdomen more severe and marked tenderness over right lower quadrant. Patient became weaker, was pulseless and it was impossible to get blood pressure readings on second day. Patient died December 13, 1921. Permission for autopsy could not be obtained.

B. A CASE OF ADDISON'S DISEASE.— By DR. METALLE.

C. TUMOR OF THE GASSERIAN GANGLION.—By DR. A. D. CARR.

2. METABOLISM IN DIABETES FROM THE STANDPOINT OF ANTIKETO- GENESIS.—By DR. P. A. SHAFFER.

The mixture of protein (amino acids), fat and carbohydrate oxidized in the body gives rise, in the course of their metabolism to varying amounts of glucose and of aceto-acetic acid depending upon the relative amounts of the three foodstuffs in the metabolic mixture. Whenever the mixture is such that not more than two molecules of aceto-acetic acid are formed for each molecule of glucose burned, the aceto-acetic acid is completely oxidized and little or no acetone bodies are excreted, but when the glucose combustion falls below this minimum ratio, the keto acid escapes oxidation and accumulates with resulting acidosis. The amount of total acetone bodies excreted is therefore a measure of the excess of "ketogenic" over "antiketogenic" material in the mixture being metabolized. The rate of "antiketogenic" metabolism is, in diabetes (with glycosuria), equivalent to the total carbohydrate tolerance and is therefore sharply limited by the disease. It follows there-

fore that when the urine shows both glucose and diacetic acid, the patient has no margin of safety and any accident may precipitate serious acidosis. Since it is doubtful whether the carbohydrate tolerance can be raised in most cases, the only recourse is to decrease the rate of "ketogenic" metabolism; i. e., the amount of fat and protein burned, and the total metabolism. This is accomplished by (1) decrease in activity or rest in bed, (2) low protein diet, (3) avoidance of exposure to cold or excitement, (4) undernutrition or fasting with resulting decrease in basal energy exchange.

The following formula allows an approximate calculation of the minimum food carbohydrate requirement to avoid ketosis:

$$\frac{\left\{ \begin{array}{l} \text{Estimated total energy} \\ \text{exchange for 24 hours} \end{array} \right\} - (100 \times \text{urine nitrogen})}{60} = \text{grams food C H.}$$

If the subject is unable to remain sugar free with such an amount of starch per day, he will excrete about as many grams of total keto acid as of glucose, and acidosis can be avoided only by decreasing the total metabolism. And the margin of safety of a patient (as regards danger of acidosis) is represented by the amount of carbohydrate which he will tolerate above the calculated minimum requirement. Data were presented from a number of cases in support of the above statements.

DISCUSSION

Dr. Olmsted: I want to express my appreciation of what Dr. Shaffer has taught me in the way of these things. The application of them to treatment of patients is just exactly as he has pointed out. For instance it seems to me the way the patient gets acidosis is usually because he is up and around and his tolerance is low and as he is exercising he is burning a great deal of fat. His tolerance isn't sufficient, as Dr. Shaffer has shown, to prevent acetone bodies being formed in the body. They are formed and with the presence of excess acid in the body we know carbohydrate cannot be stored as it can ordinarily. I do not know if I am correct in assuming this, but there is some evidence to show that acid diminished somewhat the ability of the body to burn carbohydrate. So it is that acidosis promotes more acidosis. In the treatment we first put the patient to bed. That is probably the greatest help to him. The amount of fat burned is reduced, the acid reduced and the carbohydrate tolerance improved and the vicious circle is interrupted. There is also a question in my mind whether with acidosis there is not an increase in the basal metabolism, but the point I wish to bring out is that starvation reduces metabolism first, because it puts the patient to bed and reduces the amount of fat burned and hence the amount of acetone bodies formed. The interruption of this vicious circle gives the patient the opportunity to get the better of his condition.

Speaking of starvation, it is of interest to see whether or not there is a reduction in the basal metabolism. I have followed a number of cases and in some there is a reduction from 10 to 20 per cent. but in the case of small, undernourished individuals there is usually no noticeable reduction in the basal metabolism probably because it is already reduced below the normal level, but in those overweight individuals starvation reduces the basal metabolic level and thus aids in the reduction still further the fat burned. The reduction in the basal metabolism, without a doubt, plays a considerable role in the advantages obtained from starvation treatment.

Dr. W. McKim Marriott: Dr. Shaffer's paper is

an excellent demonstration of the fact that medicine is becoming more and more a mathematical science. In the treatment of diabetes the matter of carbohydrate tolerance has already been carefully worked out. Also the methods of determining the degree of acidosis have been placed on a mathematical basis. Dr. Shaffer's work gives us a method of procedure which serves to prevent acidosis, or at any rate to know just what degree of acidosis we may expect to occur. It is no longer necessary to grope in the dark or wonder whether or not a patient is going to develop acidosis. By applying his method we can tell beforehand. He has shown the mechanism of the production of acetone bodies in normal individuals and in diabetics and his theoretical assumptions have been proven correct in the clinical application.

There are some conditions in which it seems necessary to assume that a different mechanism takes place and I would like to ask Dr. Shaffer if he has any suggestions to offer in these cases. The particular types of cases that I refer to are "cyclic vomiting" and certain infections, such as dysentery or epidemic nose and throat infections, as well as at the onset of certain infective diseases, especially measles and scarlet fever. In all of these cases the tremendous production of acetone bodies may occur suddenly and despite the fact that the child is taking in an abundance of carbohydrate, there is no sugar in the urine in these cases and no increase in blood sugar.

Dr. P. A. Shaffer: I am glad that Dr. Olmsted brought out the important practical question of the possibility of increasing the carbohydrate tolerance of the diabetic. Certain cases like "Cyril K" of DuBois for instance show an undoubted increase in tolerance, but these cases appear to be rather exceptional. More often, as in Joslin's case No. 740, the increase in tolerance is only apparent and not real, the fall in glycosuria and in acidosis being due, according to my analysis of the data, to the fall in total metabolism as the result of rest and fasting, and the decrease in the amount of ketogenic and antiketogenic molecules metabolized. The total amount of ketogenic fatty acids and amino acids in the metabolic mixture drops to a point where it no longer exceeds the rate of glucose oxidation (which is the carbohydrate tolerance)—and the ketosis falls. There is little evidence to indicate that a material increase in tolerance is actually accomplished in most diabetics. The beneficial effect of diet, rest and of undernutrition is due to the slowing up of ketogenic metabolism.

In regard to Dr. Marriott's question, I do not know the answer. Until we have more facts concerning such types of ketosis in children we can only speculate. Perhaps the total metabolism is much higher in such cases than we think it is, and if so the carbohydrate may be exhausted more rapidly than we think it is. There is the possibility that the body may temporarily lose the ability to burn sugar without acquiring the hyperglycemia and glycosuria of the diabetic. It is speculative, but it is perfectly conceivable that the ketosis of such patients may be due either to exhaustion of glycogen reserve or to temporary loss of power to catabolize it. More work on this subject is needed.

3. TUMOR INCIDENCE AND TUMOR AGE.—By DR. LEO LOEB.

The tumor age of a certain strain is as definitely determined by heredity as the tumor incidence; the tumor age may be a finer means of distinction between different strains than the tumor incidence.

There is a definite relation between the tumor rate and tumor age in mice. In those groups or

strains in which the tumor incidence is high, the tumors tend to appear early, and in those groups or strains in which the tumor rate is low the tumors tend to appear late. We could arrange our mice in three groups, with high, medium and low tumor rate; in these three groups the tumor age showed corresponding changes.

The period of life at which a certain kind of tumor shows a maximum frequency in a certain species is not definitely fixed, but it varies with the rate of tumors in certain strains. The usual statistics represent an average between the maxima in different strains in which the maximum varies in accordance with their tumor rate.

There is in addition to this general relation between tumor age and tumor rate in certain strains a specific tumor age which may differ from that expected in the strain on the basis of its tumor rate. Furthermore, in hybrid strains tumor rate and tumor age may be inherited independently of each other.

These relations between the tumor age and tumor rate can be best explained if we assume that the hereditarily transmitted constitution, as far as it represents the tendency of the organism to develop tumors, depends on the co-operation of multiple factors. These multiple factors determine the intensity in the tendency to tumor development in a certain individual. In general the greater this intensity is, the earlier appear the tumors and the greater is the probability that in related individuals there exists likewise a tendency to the development of tumors.

It is furthermore probable that in addition to the general factors determining the intensity in the tendency towards the development of cancer there exist factors which determine specifically the tumor age in certain individuals and strains. The factors for tumor rate and tumor age may be inherited independently of each other in hybrids.

4. INFECTION OF THE MENINGES AND LUNGS CAUSED BY A SPECIES OF ACTINOMYCES.—By DR. HOWARD H. BELL.

A white male, 44 years old, traveling salesman, was admitted to Barnes Hospital December 14th, 1920, complaining of headache and high fever. The patient gave a history of furunculosis during the preceding four or five months, and of having had a pimple on the outside of his nose two weeks before admission; these lesions were healed at time of admission. The illness commenced December 6th, 1920, with a chill. December 8th, the patient complained of cold in head and high fever. December 9th the temperature rose from 100 to 104 degrees F. and continued as such until admission.

Symptoms of meningitis became more and more evident. The cerebrospinal fluid was turbid and under increased pressure. Cell count was 2300 with 88 per cent. polynuclears. Globulin and albumin increased. Patient died December 20th.

Autopsy.—The body was well nourished. Eyes protruded and conjunctivae swollen and ecchymotic.

On the pleural surface of the left lung were about 24 raised areas from 2 mm. to 2 cm. in diameter, which were firm and rather sharply circumscribed, with dark red peripheries and yellowish centers containing tenacious pus. The right lung showed six similar areas. A branch of the pulmonary artery at the periphery of a consolidated area was occluded.

Much purulent exudate surrounded the hypophysis and the cavernous sinuses were filled with pus. Exudate covered the base of the brain and extended upwards over the lateral surfaces of the hemi-

spheres. The exudate was composed of polynuclear neutrophiles and large mononuclear leucocytes in varying proportions. Small vessels were at times filled with pus. Masses of filamentous organisms were in these localities and in the cavernous sinuses.

The lesions in the lungs were peculiarly focal. Infiltration with polynuclear neutrophiles and large mononuclear leucocytes and some hemorrhage surrounded the central areas of necrosis. Masses of branching filamentous organisms were in the occluded vessel and in the abscesses.

The organism was grown with much difficulty. It was non-pathogenic for rabbits, guinea pigs and mice. It liquefied gelatin and Loeffler's serum medium and peptonized milk. The organism has the morphological characteristics of the species *actinomyces*.

The abscesses in the lungs were considered to be caused by septic emboli from the cerebral vessels. No focus could be found to precede the cerebral infection. Such cases have been described as primary infections in the meninges.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met in joint session with the county medical societies of Callaway, Audrain, Howard, Randolph, Cooper and Cole, at the Daniel Boone Tavern, Columbia, February 1. The attendance was cut short somewhat on account of bad roads and a great deal of sickness.

This was one of the most enthusiastic meetings of medical men that it has ever been our pleasure to attend. The meeting was called to order at 10 a. m. by Dr. Guy L. Noyes, of Columbia, president of the Boone County Medical Society. On behalf of the Boone County Medical Society and of the University of Missouri, Dr. Noyes extended a hearty welcome to the visitors.

Dr. Richard Sutton, of Kansas City, conducted a cancer and skin clinic, and gave a very interesting talk on cancer in general, illustrating the subject with lantern slides.

At 11 o'clock, Dr. S. J. Ragan, of Moberly, president of the Randolph County Medical Society, discussed "The Importance of Cystoscopy in Urinary Disturbances," with a clinical demonstration. This paper was discussed by Dr. A. W. Kampschmidt, of Columbia, Dr. Ragan closing.

At noon the visitors and guests were entertained with a luncheon given by the Columbia Commercial Club.

After luncheon, Mr. R. L. Hill, president of the Commercial Club, in a few well chosen remarks, introduced Dr. J. C. Jones, president of the University of Missouri, who gave a brief outline of the aims and purposes of the University with reference to the future development of the medical department. Dr. Jones asked the co-operation of the entire medical profession.

A vote of thanks was extended to the Commercial Club for the luncheon.

The meeting reconvened at 1:30, being called to order by Dr. Guy L. Noyes, who yielded the gavel for the afternoon session to Dr. S. J. Ragan, who introduced Dr. Frank G. Nifong, of Columbia, who read a most interesting and instructive paper on "A Case of Osteomyelitis of the Humerus," with resection of shaft showing complete regeneration. The progress of this very interesting case was given in detail and illustrated by lantern slides which showed the gradual development of the bone and complete restoration of function. Dr. Nifong received the congratulations of all present on his success with this case.

Dr. Harvey S. McKay, of St. Louis, read a paper

on "The Value of Surgery in Gall-Bladder Disease." This paper was discussed by Dr. Frank G. Nifong, of Columbia, and Dr. Edward E. Mansur, of Jefferson City, Dr. McKay closing.

Dr. William Englebach, of St. Louis, read a very interesting paper on "Disorders of Internal Secretion and Their Effects on Human Metabolism," giving numerous lantern slide illustrations of the different types.

Dr. Charles Greene, Professor of Physiology in the University of Missouri, discussed the paper, Dr. Englebach closing.

At 6:30 a banquet was served in the dining room at the Tavern Hotel.

Dr. Guy L. Noyes acted as toastmaster and took the opportunity of acquainting those present with the plans for the future development of the medical department of the state university, emphasizing the plea of Dr. J. C. Jones for a united medical profession in support of efforts to establish a greater medical department at the University.

Dr. A. W. McAlester, the "Grand Old Man of the Missouri Medical Profession," was called upon and made an earnest plea for the profession to aid Doctor Jones in his efforts.

Dr. Harvey S. McKay, in a most interesting talk, gave some fatherly advice to the future M. D.'s.

Dr. William Englebach pledged the co-operation of the medical profession of St. Louis.

Dr. Edward E. Mansur voiced his approval of the project and pledged Cole County's co-operation.

On motion of Doctor Mansur, seconded by Doctor Stine, a vote of thanks was extended to all those who contributed to the program.

Following is a list of the guests from points outside of Columbia: Drs. Richard Sutton, Kansas City; Wm. Englebach, St. Louis; Harvey S. McKay, St. Louis; S. J. Ragan, Moberly; R. D. Streeter, Moberly; C. C. Smith, Moberly; H. N. Crews, Fulton; M. O. Biggs, Fulton; M. N. Smith, Fayette; C. H. Lee, Fayette; E. E. Mansur, Jefferson City; B. W. Vaughn, Urbana; A. R. McComas, Sturgeon.

The following members were present: Drs. Guy L. Noyes, J. E. Thornton, D. S. Conley, W. R. Schaefer, D. G. Stine, C. M. Sneed, D. H. Dolley, E. R. Clark, J. E. Jordan, C. W. Newman, A. W. Kampschmidt, M. P. Ravenel, W. E. Belden, W. A. Norris, Edith Matzke, S. D. Smith, F. G. Nifong, W. P. Dysart, James Gordon, C. W. Greene, Floyd Simpson, W. O. Fischer, A. W. McAlester.

The dentists of Columbia were invited as guests of the Boone County Medical Society to attend the various sessions and the following were present: Drs. Hugh Stephenson, H. I. Bragg, Elmer Smith, R. L. Lockridge, F. S. Hanna.

J. E. JORDAN, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met December 12, 1921, with the following members present: Drs. J. W. Berry, D. H. Hope, E. H. G. Wilson, Paul R. Williams, G. W. Walker, W. E. Yount, G. B. Schulz and O. L. Seabaugh.

The following officers were elected for 1922: President, Dr. J. D. Porterfield, Jr., Cape Girardeau; vice president, Dr. Dayton Seabaugh, Millersville; secretary, W. E. Yount, Cape Girardeau; treasurer, W. N. Howard, Cape Girardeau; censor for three years, B. W. Hays, Jackson; delegate, Dr. D. G. Seibert, Jackson.

O. L. SEABAUGH, M.D., Secretary.

DAVIES COUNTY MEDICAL SOCIETY

The Davies County Medical Society had their regular meeting at Gallatin, December 20, 1921, with the following members present: Drs. J. D. Dunham, T. E. Cooper, L. R. Doolin, M. A. Smith, Jno. L. Reich and N. M. Wetzel.

The following officers were elected: Dr. J. D. Dunham, president; Dr. M. A. Smith, secretary and treasurer; Dr. T. E. Cooper, first vice president; Dr. Frank Hedges, second vice president; Dr. L. R. Doolin, delegate; Dr. T. E. Cooper, alternate; Dr. N. M. Wetzel, reporter.

After the election of officers, resignations from the following members were read and accepted by the Society: Dr. E. E. Griffith, on account of poor health; Dr. R. V. Thompson, in banking business; Dr. Hardinger, practically quitting the practice of medicine.

Dr. Johnson, of Winston, was elected to membership.

After taking up and thoroughly discussing different subjects of interest to the Society, it was moved to adjourn until the next regular meeting.

N. M. WETZEL, M.D., Reporter.

LACLEDE COUNTY MEDICAL SOCIETY

The Laclede County Medical Society met at Laclede, Monday, January 9. Present, Drs. J. B. Atchley, T. B. Herbert, S. A. Casey, Lindsey, and J. M. Billings. Dr. Atchley, the vice president, was in the chair.

While but few were present we had a very pleasant meeting. Dr. Herbert reported a case of uterine hemorrhage which led to a general discussion of the causes of hemorrhage of this character. No papers were read, but the remainder of the time was spent in discussing venereal diseases and how to control and treat them, taking into consideration the problems of the country physicians.

The meeting adjourned to meet the first Monday in April.

J. M. BILLINGS, M.D., Secretary.

PLATTE COUNTY MEDICAL SOCIETY

The Platte County Medical Society met at Platte City, February 1. A five-course dinner was served at 1 o'clock. After dinner the ladies were entertained by Mrs. H. M. Clark, while the gentlemen attempted to settle all the great questions of medicine in a scientific meeting. Papers were read by Dr. S. Redman, Dr. L. C. Northrup, and E. H. Van Meter, D.D.S., on the following subjects: Diagnostic Value of Pain in the Upper Abdomen, Diabetes, Pancreatitis, Gall-Bladder Infections, Conservative Treatment of Foci of Infection About the Mouth.

The meeting was well attended and everyone was enthusiastic over the progress and growth of the Society.

SCOTT COUNTY MEDICAL SOCIETY

The Scott County Medical Society held its regular quarterly meeting in the office of Dr. G. T. Dorris, Illmo, Tuesday, January 10, 1922, at 1 p. m.

Papers were read by Dr. H. V. Ashley and Dr. Roy Fraser, which drew out a good discussion. Other papers on the program were postponed to the next meeting on account of lack of time for reading them.

The following members were present: Drs. S.

Doggett, W. S. Hutton, H. V. Ashley, G. T. Dorris, Roy Fraser, F. L. Ogilvie and E. J. Nienstedt.

A nice lunch was served by the local profession of Illmo. The meeting was a good one. The next meeting will be held at Commerce.

E. J. NIENSTEDT, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the parlor of the Meyer Hotel, at Mountain Grove, Thursday, February 2, with the following physicians present: R. M. Norman, of Ava; A. Fuson and R. M. Rogers, of Mansfield; J. M. Hubbard, F. B. Dailey, E. C. Wittwer, H. G. James, J. R. Talley and A. C. Ames, of Mountain Grove. The president, Dr. R. M. Norman, was in the chair.

The minutes of the last meeting were read and approved after which Dr. E. C. Wittwer was elected alternate delegate to the State Medical Association, the alternate having been omitted at the time of regular election at the last meeting.

Dr. A. C. Ames presented as a clinical case a girl of sixteen with well marked symptoms of exophthalmic goiter, which was evidently inherited from her mother who had suffered from the same condition from the age of twelve years to her death at the age of about sixty. The patient first noticed her rapid heart action at the beginning of menstruation, about six months ago, which is not yet regularly established.

Dr. Wittwer gave a lecture on acidosis, in which he called attention to the frequency of its occurrence and the importance of its recognition and treatment.

Dr. H. G. James gave a talk on pneumonia, in which he dwelt upon the importance of fresh air and other well recognized treatments, making no claim to anything new.

Dr. F. B. Dailey presented his application for membership which was unanimously accepted, after which the meeting adjourned to meet at Hartville, Thursday, May 4. All went home feeling that it had been a profitable meeting, even though one man on the program was unavoidably prevented from being present and the other two had been so busy they had not been able to put their subjects in the written form they had intended.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

THE HEART: OLD AND NEW VIEWS. By H. L. Flint, M.D., late Captain R.A.M.C., Cardiological Center for the Northern Command; Physician to the Mansfield Hospital. With illustrations. New York: Paul B. Hoeber, 1921. Price, \$4.00.

In this book of Flint's the human heart is considered not only in the modern sense but also in the historical sense, for he takes the reader through the early mazes of unscientific thought on the subject, points out most intelligently the features of the teachings of our ancestors, and then leads him into the province where by means of the most recent researches a scientific conception of the heart is attained. The art of juxtaposing old ideas with new ideas cannot be too highly commended, for out of it is evolved a clear-cut picture of the subject—a much more convincing and understandable presentation of the matter in hand, and therefore a conveyance to

the reader, from the author who follows this method, of a survey that reaches into the dim past and extends into the present. Dr. Flint has, to a degree that invites only the friendliest criticism, achieved the end of being a guide of unusual parts for the student and the practitioner, emphasizing the fallacies and wrong conceptions peculiar to an early day and dwelling in the true scientific spirit on the mechanical methods of research that are with us today. With his conception of the heart as a machine it necessarily follows that those vague physiological problems—colloid chemistry and internal secretion—are negligible matters; what interests him and what should interest the reader is electrophysiology—the heart graphic methods as they are elucidated when subjected to instrumental precision.

It can readily be understood that in Flint's book the reader will find much food for thought, for he will at once grasp the author's idea that the evolution of medicine is of great moment in elucidating any subject, and that especially in the matter of the human heart, no treatise on it can be meritorious unless the past and the present are marshalled together in the hope that the discoveries of the early investigators and those of the men of today will incite enough enthusiasm among others to lead to a nearer approach to that far-off goal—a complete mastery of the human heart.

GENERAL PATHOLOGY. An Introduction to the Study of Medicine. By Horst Oertel, Strathcona Professor of Pathology, and Director of Pathological Laboratories, McGill University and Royal Victoria Hospital, Montreal. 12 mo. Cloth, 358 pages. Price, net, \$5.00. New York: Paul B. Hoeber, 1921.

It is not overpraise to state that this work of Oertel's is one of the outstanding books of the day. Written in a style that is commendable and in the scientific spirit without which every book on the subject of pathology falls short of being in the first rank, it gives the reader a thorough interpretation of all the problems in pathology, some of which no doubt have perplexed him on account of his limited knowledge, due to the fact that he has never been fortunate enough to acquire an illuminating book on the subject.

The subject of general pathology has too long been the bete noire among physicians in general, even among those who lay claim to being well versed in all subjects of medicine. The reason for this is that most physicians—the majority—have for some unexplainable reason regarded the study of general pathology as too abstruse and too wearisome a subject to cope with, and have relegated, on account of this attitude, its interpretation to those men in the medical profession who are specialists in pathology.

While there are good reasons for this attitude, as regards a large number of books on general pathology, in the case of Oertel's work a front of this nature would be a detriment to the busy practitioner, for reasons which are too obvious to state here in their entirety. But there are three reasons which should be mentioned here, why Oertel's work commends itself to the thousands of physicians throughout the country, and they are as follows: Pathological processes are regarded as expressions of physico-chemical laws; the great educational value which accrues from a study of the historic development of ideas and hence an understanding of current ideas; the visualization of possible pathological occurrences based on the anatomical conceptions of the subject.

Any book on general pathology that has reasons such as the three mentioned above, has an asset which should bespeak a wide circle of readers, and

when added to these is a simplicity of presentation and clarity of thought that are evidenced on every page, it cannot be gainsaid, in all fairness to the author, that at last the American medical profession has a book at hand that is of so unusual a nature that it must be considered a hallmark in medicine.

NOSTRUMS AND QUACKERY. Articles on the nostrum evil, quackery and allied matters affecting the public health reprinted with or without modifications, from *The Journal of the American Medical Association*, Volume II, illustrated, 832 pages. Published by the American Medical Association, 535 N. Dearborn St., Chicago, Ill. Price, \$2.00.

Ten years ago the American Medical Association published the first edition of the first volume of this book. A year later a second and enlarged edition of the first volume was issued. Since that time *The Journal of the American Medical Association* has published, week by week, articles on the nostrum evil, quackery and allied matters affecting the public health. All this material has been collected and appears in the present volume.

Quackery can never be defended; the "patent medicine" business, however, need not be fundamentally fraudulent. There is a place for home remedies for the self-treatment of simple ailments. Unfortunately, the home remedies of today are, generally speaking, those secret nostrums commonly called "patent medicines" and the methods of "patent medicine" promotion make these products a menace to the public health. The average "patent medicine" is so advertised as to frighten well people into the belief that they are sick for no other purpose than that of causing them to purchase the nostrums.

The present volume is a veritable encyclopedia of information on the subject it treats. The book contains nineteen chapters. The titles of some of these are: "Alcohol, Tobacco and Drug Habit Cures," "Consumption Cures," "Cosmetic Nostrums," "Deafness Cures," "Epilepsy Cures," "Female Weakness Cures," "Nostrums for Kidney Disease and Diabetes," "Medical Institutes," "Miscellaneous Nostrums," "Obesity Cures," "Quackery of the Drugless Type" and "Tonics, Bitters, Etc."

This partial list of chapters gives but a poor idea of the vast fund of information contained in the book. To make the volume still more valuable it contains an index of twenty-two pages, two columns to the page, which includes references to every article appearing in the first volume of "Nostrums and Quackery" as well as to all articles in the present volume.

The book is free from stilted or highly technical language. The articles have evidently been written with the idea that the facts they contain belong to the public. In the Preface, it is emphasized that the work which this volume represents is wholly educational in character—not punitive. "The matter that appears in this book has been prepared and written in no spirit of malice and with no object except that of laying before the public certain facts the knowledge of which is essential to a proper conception of community health."

FAMILIAL BLADDER ATONY.—A family group in which bladder trouble is considered, by the male members at least, a part of the common heritage is described by F. F. Gundrum, Sacramento, Calif. (*Journal A. M. A.*, Feb. 11, 1922). There are, in three generations, five persons who almost surely, and four more who probably, were using a catheter to empty the bladder. They were all young when the trouble began—one man being only 30.

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ORIGINAL ARTICLES

HIRSCHSPRUNG'S DISEASE, WITH REPORT OF ONE CASE*

LOUIS RASSIEUR, M.D.

From the Laboratory Department of St. Mary's Infirmary,
St. Louis University School of Medicine

ST. LOUIS

When the subject of this paper^{*} came under my observation the clinical signs were such that I unhesitatingly diagnosed congenital idiopathic dilatation of the colon, so-called Hirschsprung's disease. After a careful study of the findings at the operation and some weeks later at the autopsy there developed much doubt as to whether the case might be correctly classified as such. A study of the literature is indeed convincing that cases have been recorded which might have been more correctly reported under another diagnosis. Perthes goes so far as to say that when a definite mechanical reason can be found for the disease it precludes its being classified as Hirschsprung's disease. The reader of the many monographs on this subject is amazed by the variety of theories propounded as a cause of this disease. Much has been observed by me which bears out some of the findings of others and the specimen which I have is so developed as to accentuate certain theories of causation which hitherto have been given too little credence.

The patient was a male child two years old, which had been referred by Dr. H. Harnisch, August 19, 1909. The child had been treated during that year at the children's clinic at one of the medical colleges for tuberculosis of the peritoneum. Both parents were healthy and the child was presumably so during the first year of its life, as the accompanying illustration shows (Fig. 1). This picture had been taken just prior to the baby's becoming sick the first time. The mother says that when

the child was one year old she weaned it. With the change of diet the troubles began. On July 4, 1908, the baby became sick for the first time. The abdomen was distended and continued so for ten days. Then the child remained seemingly well until November, 1908. Since then the child had been ill almost continuously with the exception that at intervals of about six weeks the distension would almost disappear for several days. During this illness the child ate poorly. It had a spontaneous



Fig. 1. The baby just prior to becoming sick the first time.

bowel movement once daily. The feces were of a pasty consistency and of a clay color. It passed much wind. The child presented the picture of extreme emaciation. The thin extremities, the face and the bony thorax bore a marked contrast to the immensely distended abdomen. The circumference of the chest through the plane of the nipple was 46 cm., through the plane of the 9th costal cartilage was 56 cm., through the plane of the navel was 53 cm., from the pubis to the xyphoid process

*Read at the St. Mary's Infirmary Conference, November, 1921.

measured 25 cm., from the pubis to the jugulum sterni, 31 cm. (Fig. 2).

Inspection revealed an extremely distended abdomen, with a furrow on and parallel to the right semilunar line. While being observed the furrow after a minute gradually assumed an almost horizontal position through the plane

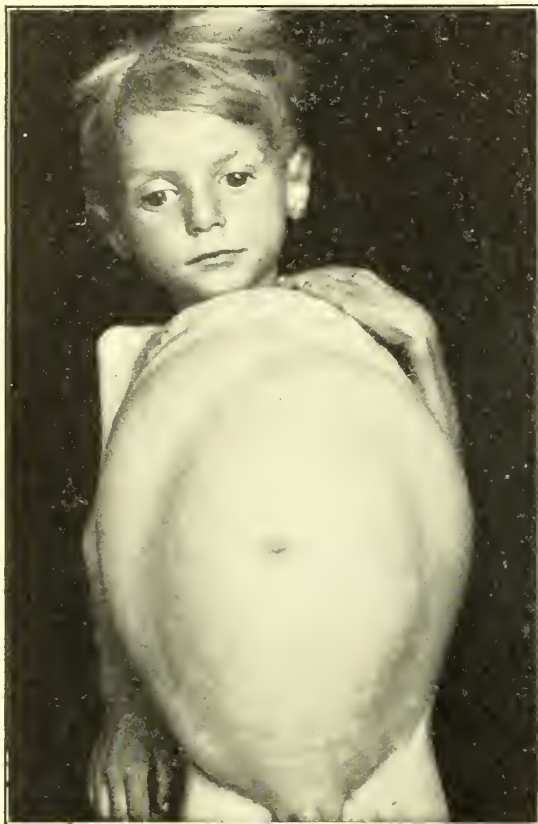


Fig. 2. Front view, showing a furrow on and parallel to the right semilunar line. Note the relatively large abdomen, the bony extremities and the seemingly small thorax.

of the ninth costal cartilages (Fig. 3). Conetti noted a similar furrow in his case. The accompanying photographs, made by Dr. R. L. Fuhrmann, show the furrow in the two positions (Fig. 4). Palpation did not reveal any solid tumor. A tympanitic resonance was present everywhere on percussion. Rectal examination was negative. The finger passed with ease. There was no stricture and no spasm. The withdrawal of the finger was followed by a small quantity of semi-solid feces. Cathartics and enemata did not aid the patient. An operation was decided upon. Owing to the enfeebled condition of the patient a two-step operative procedure was adopted.

August 22, 1909, the patient was anesthetized with ether. An incision almost nine centimeters was made in the median line above the pubis. The abdominal walls were very thin but there was no separation of the recti mus-

cles. The colon forced its way through the opening and was like an immense sausage about twenty centimeters in diameter. The mesentery of the colon was very large, allowing the colon to form loops. The descending colon was punctured with a trocar and canula to evacuate its contents. The enlargement was chiefly present in the descending and in the transverse colon, but also in the ascending colon and in the cecum. In the lower portion of the descending colon the dilatation went rather suddenly over into the normal sigmoid colon. Here no stricture nor valve could be felt. The colon extended high up into the cupola of the diaphragm. The colon in places was thicker than normal and had the consistency of leather. The appendix was drawn out through a stab wound at McBurney's point. The trocar opening in the bowel and



Fig. 3. Made one minute after Fig. 2. The furrow in this minute had gradually assumed an almost horizontal position through the plane of the ninth costal cartilages.

the median incision was closed without drainage.

August 24, 1909, the tip of the appendix was cut away and a rubber catheter was inserted to preserve the patency of the lumen. A yellow fecal liquid came from the opening. The median wound looked fine. The patient had a normal temperature for two days. The

parents took the child home on September 1, 1909. The appendicostomy did not drain the entire colon because at times the middle and especially the left side of the abdomen was very distended. The patient slept well during the night of September 3, 1909. His condition was apparently good in the forenoon. He sat in his little chair. At noontime he sud-

The cecum was dilated in the empty bowel. The dilated transverse colon in the empty bowel measured $8\frac{3}{4}$ centimeters. The dilated



Fig. 4. Showing an absence of furrows during a period when there was no peristalsis. Also gives an excellent side view. Note the relationship as to size of the abdomen, the thorax and the upper extremity.

denly became ill with convulsions. I was called. When I arrived the baby was dead. The child died at the age of twenty-five months.

One hour after the death an autopsy was permitted on the abdomen. The stomach was very small but of normal shape. There was a circumscribed peritonitis where the cecum had been attached to the abdominal wall; also around the point of trocar puncture in the descending colon. The latter area had become adherent to the upper end of the abdominal incision. The incision had healed by first intention. The ascending colon was very mobile. The mesentery of the transverse colon was very long, of the splenic flexure of the colon, 5 cm., of the descending colon 14 cm. The mesenteric lymph nodes were enlarged, mostly about 1 cm. in diameter. One may readily see in the illustrations the various dilatations.



Fig. 5. Front view of colon in preserving fluid. Note the following: 1, the dilatations; 2, the kinks; 3, the slender omentula; 4, absence of teniae; 5, absence of haustra; 6, enlarged mesenteric lymph nodes.



Fig. 6. Posterior view of colon in preserving fluid. Note the following: 1, the dilatations; 2, the kinks; 3, the enlarged mesenteric lymph nodes; 4, several inches of normal sigmoid colon.

first part of the descending colon in the empty bowel measured $6\frac{7}{8}$ centimeters in diameter. The dilated second part of the descending colon in the empty bowel measured $9\frac{1}{2}$ cen-

timeters in diameter. At the following points the colon presented a kink:

Seventeen cm. from the beginning of the cecum, the width was $2\frac{1}{2}$ cm.

A second was at the hepatic flexure, the width was 5 cm.

A third was at the splenic flexure, the width was 4 cm.

A fourth was in the middle of the descending colon.

A fifth was at the end of the descending colon, the width was $2\frac{1}{4}$ cm., which was also the diameter of the sigmoid colon and the rectum. No valves nor tumors could be made out at any of the enumerated kinks.

The colon was filled with a 10 per cent. aqueous solution of formalin and ligated at the sigmoid portion. It was then placed in a pan containing a 10 per cent. aqueous solution of formalin. After it had become fixed it was photographed (Figs. 5 and 6). A detailed description of the colon is as follows: The cecum is dilated. The entire wall at its thinnest part is 1,100 microns thick. The taeniae and the haustra are almost erased. The plicae semilunares are not normally prominent. The ascending colon is marked by a kink at its beginning, its middle and its end. Its wall is hypertrophied, being 2,700 microns thick at its thickest part. The taeniae and the haustra can be seen. The plicae semilunares are large. The omentula are long and very slender. The transverse colon is very dilated. Its wall is very thin, being 1,010 microns at its thinnest part. The omentula are very few. There are no haustra, no taeniae and no plicae semilunares. The descending colon shows a kink at its beginning, middle and end. There are no haustra and no taeniae. The plicae semilunares are slender and thin. The upper portion is atrophic, being at its thinnest part 950 microns thick. The lowest portion is hypertrophic, being 2,000 microns thick at its thickest part. The lower portion of the sigmoid colon and the rectum are almost immobile.

Having learned that some writers have attached great importance to the microscopic findings in these cases, of whom Bing attributes the dilatation of the colon to a congenitally insufficient innervation of the bowel, Concetti to an aplasia of the musculature of the bowel, Petrivsky to a hypoplasia of the elastic tissue fibres of the bowel, while J. E. Schmidt in a study of four cases found a hyperplasia of the elastic tissue fibres of the bowel, I determined to make a careful study of the minute anatomy. Therefore a narrow strip of bowel was cut, extending from the beginning of the cecum along the entire colon into the healthy sigmoid flexure. All the speci-

mens from this strip were stained after the following methods: Hematoxylin and eosin, and the Unna-Taenzer method for elastic tissue (Fig. 7). The hematoxylin and eosin shows in the mucosa catarrhal enteritis, especially pronounced in the atrophic portions of the colon, as evidenced by a hypersecretion of mucus, a desquamation of the epithelium, an increase of nuclei in the interglandular tissue and by an absence of the epithelial covering of the solitary lymph follicles in some instances. Cells containing pigment are also found. The mucosa is thickest in the end of the descending colon, being 400 microns, in the beginning of the transverse colon 350 microns.

It is thinnest in the extremely dilated portion of the transverse colon, being 60 microns,



Fig. 7. Hematoxylin eosin stain showing catarrhal enteritis.

and in the dilated portion of the descending colon being 60 microns, this extreme thinness no doubt being due to the stretching caused by distension. The submucosa is thickest at the beginning of the transverse colon, being 600 microns and thinnest in the ascending colon, being 100 microns. The thickness generally of this tunic is dependent upon the coincident atrophy and hypertrophy of the intestinal wall. In this tunic as in the others is seen sometimes diffuse and sometimes circumscribed round cell infiltration. The subserosa is thickest in the hypertrophic portion of the ascending colon, being 800 microns and thinnest in the dilated transverse colon, being 250 microns. The same may be said as to the round cell infiltration as has been observed in the mucosa and submucosa. The thick-

ness of this tunic is controlled by the same controlling factors spoken of above. The circular muscle coat is thickest at the hepatic flexure, being 1,050 microns. It is thinnest in the cecum, the dilated portion of the transverse and the descending colon being 300 microns. The longitudinal muscle coat is 450 microns in the ascending colon, and 500 microns at the beginning of the sigmoid colon. It is thinnest in the dilated portion of the transverse colon, being 120 microns, and in the dilated portion of the descending colon, being 150 microns. The circular as well as the longitudinal muscle fibres look wider than normal on the cross section (Fig. 8). In the hypertrophic intestinal wall are seen microscopical areas which show degeneration manifested by hyaline change and failure to give

is thickened there is a corresponding increase above normal of elastic tissue in the blood vessels as elsewhere in the intestinal wall, and where the intestinal wall is atrophic there is

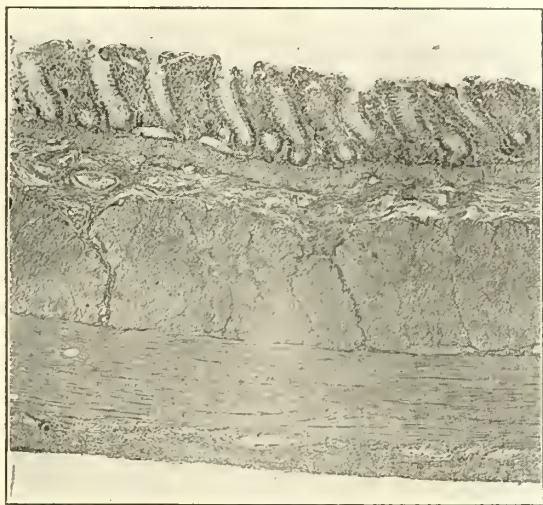


Fig. 8. Hematoxylin eosin stain showing degeneration of the circular and longitudinal muscle fibres.

normal color reaction to eosin, vacuolization, and in some instances the nuclei as well as the myoplasm have disappeared, leaving a gauze-like appearance to the tissue.

In the dilated portion of the gut this form of degeneration reaches its highest development. In some instances a round cell infiltration is seen, in others an increase of connective tissue fibres (non-elastic variety) among the muscle cells. The thickness of the entire intestinal wall is greatest at the hepatic flexure, being 2,725 microns; it is least at the dilated portion of the transverse and the descending colon being respectively 1,010 microns and 950 microns. The Unna-Taenzer orcein stain counterstained with polychrome methylene blue reveals the following: The quantity of elastic tissue varies in the different parts of the colon (Figs. 9, 10). However, one condition is constantly present, namely, in the parts where the intestinal wall

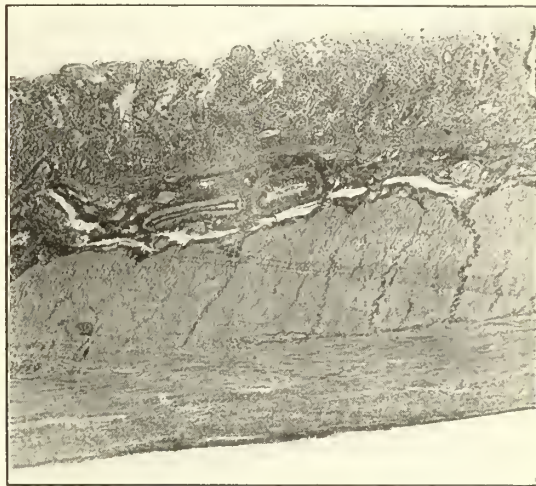


Fig. 9. Unna-Taenzer orcein stain of a portion of hypertrophied intestinal wall showing increase of the elastic tissue fibres.

a corresponding diminution, at times almost an absence of elastic tissue fibres. Some sections were stained with Levaditti stain for spirochaeta of syphilis. None were found. Some sections were stained with Gram-Weigert stain and others with Loeffler's methylene blue stain for bacteria. In some sections an organism of the shape of the colon bacillus was seen which no doubt got into the tissue after death. Some sections were stained with Van Gieson stain, but nothing is seen which has not been spoken of above. A microscopical examination of the mesenteric lymph nodes shows a simple hyperplasia.

A study of the microscopical findings in a general way shows areas where both the circular and the longitudinal muscle layers are very atrophic on account of the prolonged hyperdistension and the fibrous degeneration

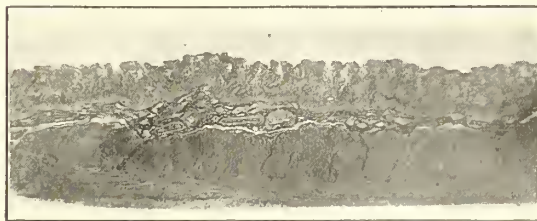


Fig. 10. Unna-Taenzer orcein stain of a portion of atrophied intestinal wall. It shows a decrease of the elastic tissue fibres.

which no doubt simulated the findings that induced Concetti to attribute the cause of this disease to a defect of the musculature. There are portions of the bowel, however always and

only the extremely dilated portions, which display the hypoplasia of the elastic tissue fibres so minutely described as the causal factor by Petrivalsky. The thickened portions of the bowel on the other hand show even an increase in the amount of elastic tissue fibres both in the vessels and generally, fortifying the stand taken by J. E. Schmidt in his attack on the position of Petrivalsky. As to the observation of Bing, "of a congenital insufficient innervation of the colon," I can only say that with the methods of examination which I employed I found nothing to confirm his theory. The special technique for examination of nerve structures could not be employed since all my tissue was fixed in formalin.

COMMENT

Before concluding I wish to call attention to the following: I take it that when the first kink became effective the descending colon became dilated. As it increased in every diameter it no longer found room in its normal position. Its position therefore changed. Then the third kink caused the dilatation of the transverse colon. As it increased in all its diameters it no longer could maintain its normal location. With the change of location of the transverse colon developed the fourth kink at the hepatic flexure. After the same manner the second and the fifth kinks, and the cecal dilatation developed.

The kinks were due to a change of the location of the bowel caused by the dilatation. The latter force seemingly caused lengthened mesenteries. Where the mesentery did not lengthen with equal rapidity, as at the hepatic flexure, the splenic, and the lower portion of the sigmoid colon, there a kink was formed. The process was most pronounced in the descending colon because here it had its inception. I wish to recall at this point that the clinical manifestations were first noticed soon after the baby was weaned.

The above assumption in a measure corresponds with the findings of Valsalva, Spigelius and Morgagni. According to Delkeskamp these writers describe a formation of sigmoid colon loops of congenital origin on account of long mesentery. Curschmann and later Von Samson have shown that a long sigmoid colon alone will not suffice to produce volvulus, but that both limbs of the loop must be near one another at their base or termination which may be brought about by meso-sigmoid affection. It seems logical to suppose that a force not sufficient to produce a volvulus may still suffice to produce a chronic partial obstruction; secondly, any functional disturbance of the colon caused by change of diet or otherwise may cause a primary dilatation of

the colon favoring the formation of kinks under the anatomical conditions described above.

SUMMARY

A summation of the microscopical, the gross anatomical and of the clinical findings led to the following conclusions:

1. The microscopical findings were not the cause but the effect of the prolonged incomplete obstruction of the colon.
2. The developmental anomaly, namely, the long mesentery of the descending colon, the relative short mesentery of the sigmoid colon, afforded ample anatomical basis for the formation of a kink during the presence of a functional disturbance directly due to errors in diet attendant on weaning the child.
3. After the formation of a kink at the junction of the descending and of the sigmoid colon and the development of the dilatation of the descending colon, the remaining kinks and dilatations are but natural sequels.

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BIBLIOGRAPHY

- G. Perthes: Arch. fuer Klin. Chir., Bd. 77, page 1, 1905.
 Concetti, cit. by Finney: Journal of Surgery, Gynecology and Obstetrics, Vol. VI, page 624, 1908.
 J. Petrivalsky: Arch. fuer Klin. Chir., Bd. 86, 1908.
 Bing, cit. by J. Petrivalsky.
 J. E. Schmidt: Von Bruns Beitrage fuer Chir., Vol. LXI, page 682, 1909.
 Delkeskamp: Muench. Med. Wochenschr., page 166, 1906.

PROBLEMS IN MASSIVE DOSE X-RAY THERAPY—NEWER METHODS OF APPLICATION AND MEASUREMENT

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When the etiology of malignant tumor pathology is finally determined, such new growths will be treated in all probability by a blood serum somewhat analogous to antitoxin in diphtheria or a similar specific equally as potent, but in view of our present limited knowledge, future favorable results in the treatment of malignancy are dependent largely upon the intensity with which we attack the local lesion, rather than upon the body as a whole. We must not forget, however, that relative immunity is apparently activated or stimulated by the use of X-ray or radium in individual cases, even though the local lesion did not receive direct radiations.

Those of us who are studying and treating cancer conditions realize that much is yet to be learned ere even the fundamental problems in malignancy are solved. In view of our present limitations in attacking extensive tumor pathology, we must realize that very much

more can be accomplished at the present time by combined methods of treatment than was possible in the past when operative surgery alone was relied upon. The physician who habitually employs but one method of attack to the exclusion of all others, while he may have limited success with certain types of cancer, cannot hope to obtain equally brilliant and uniform results in a wide range of cases as he who uses a carefully selected method or methods judiciously combined.

Operative surgery, cautery, coagulation, desiccation, radium and X-ray, alone or in combination, are the most important methods to be of the most practical value in locally combating malignant disease in its various manifestations. It would seem reasonable therefore that in order to accomplish the maximum good results with these available weapons, in view of the fact that it is almost impossible for one man to be proficient in the application of all of these methods, selective co-operation among a group of men, each an expert in his own specialty, is not only desirable but absolutely essential. Each individual method of attack or technique of application is being constantly improved upon. Perhaps no specialty has seen greater advances in the past few years than radiation therapy.

Medical literature from abroad abounds in reports of new and successful methods of attacking cancer by means of the Roentgen ray. Many observers who have visited these clinics report of the wonderful progress being made by these radiologists, but very few have actually attempted to apply these observations and techniques to the present apparatus available. The most careful work along these lines is being accomplished by Doctors Schmitz and Sittenfeld, both of whom have had the advantage of studying the somewhat radical methods of therapy of Kroenig, Friedrich, Schoenburg and others by personal observations in Germany.

We do not wish to review all the German literature available, but desire only to discuss briefly a few fundamental and instructive facts with reference to the newer methods of application and measurement of the Roentgen rays and the clinical changes we have observed following such revolutionary methods of treatment during the past five months.

The perfection of an instrument called the IONTOMETER, of Kroenig and Friedrich, for the exact measurement of radiations, has been directly responsible for the newer developments in radiotherapy technique. The measuring of the intensity of the rays is exclusively performed by such an ionization method. However, in order that these rays may be measured at every possible level of the tissues under

consideration this very bulky apparatus was given the form of a small sound. It was then found possible to either place this apparatus upon the surface of the skin over the parts to be radiated, or to introduce the iontometer directly at the site of the tumor under treatment. This was found to be extremely practical during the radiation of pelvic malignancies, this small chamber being placed within the vaginal opening. A two-leaf electroscope was connected to this ionization chamber within the tissues by means of a dielectric cable four meters in length. During the actual treatment the comparative dosages could be calculated.

At the present time the deflection of the leaves of the electroscope are observed by means of a reading microscope provided with a scale in the ocular. This method is extremely delicate but more accurate and more valuable than any method thus far devised, and furthermore, these direct observations during the administration of the treatment can be observed in an adjoining room, the operator being fully protected by lead walls.

What has been the value of this new method of measurement and what bearing has it on the future radiotherapy techniques? With reference to the former it certainly is self evident that the radiation of deep-seated tumor pathology has become less empirical and that the future therapy must necessarily become a more practical specific for the local lesion. The Roentgen dose can at the present time be more accurately controlled and measured by the use of the iontometer described.

An important factor in all radiations is the hardness of the rays employed. This hardness of the rays depends upon the wave lengths. The higher the voltage the greater is the velocity of the electrons and the shorter are the wave lengths of the rays and the greater the penetrability. After all, penetrability is absolutely essential to produce radiations within the diseased tissues beneath the skin surfaces.

This naturally brings us to the discussion of the physics of X-ray, which we are very anxious to avoid. However, a general knowledge of a few of the fundamental facts should be considered briefly, especially the relationship of the depth dose to the dose applied on the surface of the skin. This latter is spoken of as that amount of ray energy absorbed in a very thin layer of superficial surface per unit volume (namely one centimeter), and the depth dose as that amount of energy absorbed in a very thin layer at the base or level of the surface per unit volume.

The actual radiations reaching the deeper areas of the body are essentially of prime im-

portance. Two methods are employed to measure the absorption of deep-seated tissue cells; one by calculation of the surface energy and the half-value layer and the other by means of the ionization chamber unit measurements.

In the past multiple cross-firing has been the method of choice to increase the efficiency of the depth dose, but as we hope to show in the following review of experiments, there have been recently reported many other heretofore unknown factors playing a large part in the administration of the lethal dose, especially the secondary radiations produced within the tissues themselves, which are equally potent and perhaps even more effective than we at present realize.

As we have already stated, the penetrability of the X-ray can now be determined by measuring the intensity of the radiation with the electrometer at the surface as well as at the depth of the tissues. The intensity differs according to variations in distance of the source of the rays from the body, the focal distance, the kind and thickness of the filter and the size of the field or portal of entrance, the tube and transformer types, etc.

It is therefore essential to review certain facts with reference to the size of the radiating fields found to be most efficient, the relationship of the field to the surface and depth doses, the dosage value of the individual smaller fields of a large area with and without secondary radiations and the unreliability of the calculated dose compared with the iontometer method of measurement. First of all, the iontometer was standardized and designated as the quantity of electricity which saturated a conductor of unit length (one centimeter) to the potential of 300 volts and called one electrostatic unit.

Comparing the unit depth dose obtained with this dosimeter and those obtained by calculation of the half-value layers, a marked difference in the supposed absorption was observed. This difference between the measured and calculated dose was deemed to be due to secondary radiations.

These observations are of inestimable value. For example, the dosimeter has shown that in a given discharge of five electrostatic units upon the surface of an object the time consumed was 52.4 seconds, while the identical discharge of five units at a depth of ten centimeters consumed 125 seconds. The calculated dose with similar radiations at a depth of 10 centimeters would only be about 10 per cent. of the dose measured at the surface, and such an amount of radiation is inadequate to kill cancer cells. However, the actual depth dose is approximately 43 per cent. as measured with

the iontometer placed at the site of the lesion. This example apparently shows the influence of secondary radiations in the results of the measured doses by the latter more accurate method. The question of filtration cannot adequately be discussed in detail at this time. However, we merely wish to state the conclusions determined by experimental evidence. In all of these experiments the minimum filtration found desirable was the equivalent of eleven millimeters of aluminum or one-half millimeter of copper, and if the potential of the transformer is sufficiently increased to permit a higher filtration, since the homogeneity of the rays is so very important in ideal therapy, it would probably be advantageous to employ a higher potential than 140,000 volts sphere-gap measurement.

That the size of the field has a definite influence on the time and duration of the application has likewise been proven. The X-ray beam was limited to the following sizes: four by four centimeters up to twelve by twelve centimeters. Both the surface and depth doses were then measured by the iontometer, the amount being uniformly five electrostatic units filtered through one millimeter of copper. The time required to discharge this number of units was 39.9 seconds for the smaller four by four centimeter area on the surface of the object, and 29 seconds for the larger twelve by twelve centimeter area. While the depth dose measured respectively 110 seconds and 57 seconds. The time difference for the surface measurement was one and one-half second and 53 seconds difference in the depth calculation. Therefore, the conclusions arrived at are that the size of the field has a definite influence on the time duration of the application of the dose, the larger field therefore within certain limits being more efficient in order that maximum radiations may reach the deeper tissues under consideration for destruction. The secondary rays having a more or less distinctly limited space of action, Friedrich found no marked advantage in increasing the size of the fields above 15 centimeters.

Another observation was made at this time with reference to the extent of the radiations outside of the field under consideration. The dose, of course, is most intense in the center of the field and gradually decreases toward its periphery, and there is a similar gradual decrease in dose from the border of the radiation field outwardly.

The principle of homogeneous radiation of Dessauer has been accepted as correct, that a different type of ray has similar characteristics, and the present possibility of exactly measuring the Roentgen dose at any given point within the area exposed to radiation by

means of the iontometer has been a distinct advance in the study of homogeneous radiations and should be a definite aid in the future selection of those rays best suited to ideal Roentgenization. It will mean a necessary increase in the voltage output of our present machines, perhaps above 200,000 volts, and this would likewise necessitate an increase in the size of our present therapy Coolidge tubes.

Transformers of this type are now in the process of manufacture for massive dose therapy, the accompanying tubes measuring no less than three feet, all of which is unfortunate in a way, because of the necessary increase in size of such tremendous power plants and the probable added cost and difficulties of operation. We merely mention these future possibilities, not wishing to detract from the unlimited possibilities in radiotherapy with the present transformers. It has been our aim to as nearly as possible duplicate the techniques applied by our continental investigators (Kroenig, Friedrich, Dessauer, Schoenburg and others), with the apparatus and tubes available at the present time.

Our minimum exposures have been 300 milliamperes minutes over a single area, while the maximum dose has been occasionally extended to 700 milliamperes minutes. Three ports of entry have been found practical. For example, in pelvic malignancies: (a) Entire lower abdomen. (b) Left posterior oblique. (c) Right posterior oblique. The upper abdominal region is frequently given a modified treatment, especially over the liver areas, in addition to the above three ports of entry. The following factors remained constant throughout all of the X-ray treatments:

Filtration, one-half millimeter of copper and the equivalent of eleven millimeters of aluminum and glass.

Focal distance was limited to 35 centimeters.

Voltage readings remained at 140,000 volts. (Sphere-gap measurements.)

Current passing through Coolidge tube was limited to five milliamperes.

The only factor which did not remain constant was the time. The above dosage was not applied uniformly in all cases, but modified according to the individual case and the extent and location of the malignancy. In fact, one does experience an unconscious sense of responsibility while applying the full dose over a given area at one time. We have accordingly modified our method of application so that the entire dose is not applied at one sitting, preferring to radiate the majority of our cases over a period of three, four and five successive days.

In another class of cases the individual dose was further subdivided into two or more ses-

ces, that is one-half of the full dose over a definite area was administered at one sitting and the other half sometime during the following ten days. Therefore, ten individual treatments in all were given through three portals of entry, but the maximum total dose for each individual area during a period of ten days totaled from 300 to 700 milliamperes minute exposures, the above described factors remaining constant. The minimum exposure of 300 milliamperes minutes in the majority of cases produced a very faint tanning, while a uniform slight blistering of the skin was noted following an exposure of 450 milliamperes minutes. The preceding maximum dosages produced very severe skin reactions and are only applicable to inoperable breast pathology containing large tumor masses, which are cauterized by such radiations. The extreme first degree reactions in all of these cases healed rapidly, in fact much more rapidly than the first degree burns we have observed in the past with only four millimeters of aluminum between tube and patient. It must be remembered that if these treatment are given continuously over a period of six or more hours the toxicity is frequently very severe and some of our colleagues have reported deaths following such continuous and intensive radiations.

In our very earliest cases we increased the intensity and quantity of our rays very slowly until the after effects finally justified our adopting the above described constant factor technique. We likewise considered possible future unfavorable post-radiation changes of the skin or deeper structures. However, we have been fortunate in not observing such unfavorable tissue changes, having exercised at all times extreme caution in the selection and distribution of these massive doses to fit the needs of the individual cases. Patients who have received previous radiations have been found to be exceedingly susceptible to this type of therapy, even though eight weeks' time elapsed since the last treatment was administered. The old small squared areas of the first treatment could not be outlined. The skin area between these old portals of entry remained a deep tan, while the previously rayed areas received a first degree erythema. Consequently we reduced our total dosage in these cases at least twenty-five per cent. to avoid these unfavorable skin reactions.

A word of caution is therefore not amiss. The above outlined intensive therapy cannot be applied to routine cases without first establishing a graduated standard technique with a known and tested apparatus, frequently corrected meter readings, non-variable and measured potential, and last but not the least important, carefully selected and tested metal fil-

ters. The latter is even more important if copper is used as a filter. A sheet of one-half millimeter of copper is approximately equal to eleven millimeters of aluminum. The slightest variations in the thickness or the quality of the metal will make a tremendous difference in the type of radiations reaching the skin. When we began using this metal two separate sheets obtained were first tested both as to thickness and quality. Ordinary radiograms through this material cast an uneven and mottled shadow over the film. With such a filter untold harm may result to the skin because of the variable exposure.

We wish again to emphasize the fact that the massive doses described have only been administered during a period of approximately five months, and it would be extremely radical to report all of the cases so treated during this short period and form definite conclusions. The early local changes, however, in three distinct classes of cases did show very promising and early favorable results. We desire to remain extremely conservative, but feel justified in making the following statement at this time. The general comparative results in all types of malignancy have been more effectively influenced locally by the present type of intensive radiation than by any other method or methods we have employed heretofore. A number of cases illustrate this point very graphically, as both methods of treatment were employed in certain malignant conditions upon the same individual. We first applied the older technique, crossfiring through various portals of entry, and the changes observed at the end of four weeks were negligible. However, the neck region was again radiated with the newer technique previously described, the intensity of the radiation thus being increased by both distance and filtration. The macroscopic changes in the size of the visible tumors were remarkable in two such cases. The general discomfort was relieved, swallowing became less difficult, etc., and these changes were noticeable within ten days. The crossfire method certainly did not produce any visible variation in the size of the tumor, although multiple portals of entry were employed and the skin was visibly tanned. For a period of five months, beginning January 12, 1921, the patient discontinued the use of morphine injections and at the present time there is no visible tumor pathology, with the exception of a small raised blistered surface the size of a five-cent piece. The original infiltration reached the size of a large fist and was extremely indurated, extending throughout the surrounding neck structures.

The same course of events followed intensive radiations through both sides of the neck, in-

cluding the back of the neck, in a similar local malignancy, the tumor in this case disappearing within a very short time, approximately four weeks, with a somewhat similar blistered area one centimeter in diameter remaining, as in the case previously described. However, the latter case within the past week gave evidence of a stomach cancer with obstruction, although the local lesion remained quiescent for a period of four months.

Another class of cases treated with the present more intensive methods was the very unfavorable stomach malignancies. We all realize how hopeless such cases are and how seldom they react to any form of treatment, even temporary, unless there is present a luetic involvement. In our series of 29 cases of palpable gastric malignancies treated during January and February of this year, six patients remain more or less free of symptoms and the palpable abdominal masses have shown a definite reduction in size. In two cases it has been difficult to even palpate an abdominal induration. We merely mention this hopeless type of cancer cases and their reaction to intensive radiations as further examples of what seemed to us increased effective therapy, as compared with previous efforts in similar unfavorable cases.

The uterine malignancies have undoubtedly responded more favorably to these intensive X-rays than any other class of cases. The actual progressive or retrogressive changes taking place within the uterine walls could be both visualized and palpated. Certainly only the maximum doses should be administered in this type of cancer. The most radical intensive radiation is none too effective to penetrate the extremely dense tissues and produce intravaginal and intra-abdominal tissue changes. At the end of four weeks all of our uterine cases were re-examined and practically every gynecological report was favorable, retrogressive changes being in the minority. The original discharge had become less profuse or had disappeared entirely, and the patient's general condition was markedly improved. We then applied radium to the local lesion at frequent intervals over successive days, avoiding extreme local reactions of the normal tissues. Both from a theoretical and practical standpoint this seems to us the most plausible and effective method of procedure to follow, although in our last series of six cases the application of both types of radiation was applied simultaneously within a period of ten days. Of course, contraindications may present themselves in the future and a longer period between the administration of radium and X-ray will be found advisable. Although this combined method is especially indicated in the in-

operable cases of uterine carcinomata, yet we have found it desirable to avoid needless radical destruction of normal tissues with the use of radium in the very narrow and contracted vaginal cavities. The normal 3500 milligram hour technique may be reduced to 2500 milligram hours in selected cases, but this reduction should be equalized by increasing the external X-ray radiations. However, in the ordinary inoperable case both methods should be employed individually with maximum intensity.

We believe, therefore, that massive Roentgenization should be a part of the accepted radium treatment of uterine malignancies and administered if possible at the same time as the X-ray radiations, and both applied within a maximum period of four weeks.

SUMMARY.

The perfection of an instrument for the exact measurement of radiations and the bearing such iontometer measurements have on the future development of radiation technique have given Roentgenotherapy a more exact scientific foundation.

The newer development of larger transformers and hot cathode Coolidge tubes, having an unlimited voltage capacity, has made it possible to more effectively employ the principle of homogeneous radiation evolved by Dessauer.

The massive highly filtered single large areas of X-ray radiations are more effective in deep Roentgenotherapy than the less filtered multiple smaller areas, as evidenced by the dosimeter readings within the deeper structures.

Each individual deep therapy transformer should be standardized and periodically the potential should be checked by means of sphere-gap measurements. Filtration material should be tested carefully by photographic methods to exclude variations in quality or quantity. The high tension meters should likewise be frequently calibrated.

In addition to the above standardization of technique and consideration of mechanical details, extreme caution should at all times be exercised in the administration of these intensive radiations by further careful attention to the individual characteristics of both the patient and the local lesion.

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THE PRESENT STATUS OF TUBERCULIN THERAPY*

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During the past eighteen years there has been a revival of interest in the subject of tuber-

culin as a therapeutic measure in pulmonary tuberculosis. Many opinions regarding its value have been given, varying from absolute condemnation to enthusiastic approval, some even going so far as to claim specific qualities.

If one should question the medical profession as to the therapeutic value of tuberculin, three classes of physicians would be found; first, one class who never used it on account of empiric reasons; second, those who are prejudiced against its employment on account of seeming evidence gathered from cases treated with tuberculin that were ill adapted for its use; third, those who give this subject special attention and are enthused by the good results in properly selected cases, where other forms of treatment have failed them. In the latter class can be placed those physicians and investigators who have had the greatest amount of experience in private practice, sanatoria and dispensary work. We may mention such men as Trudeau,¹ von Ruck,² Sahli,³ Neusser,⁴ B. Frankel,⁴ Moller,⁵ Spengler,⁵ Pottenger,⁶ Robt. C. Patterson,⁷ Meyer Solis-Cohen,⁸ Lawrason Brown,⁹ Hamman,¹⁰ and a host of others who would come under this third classification. Their vast clinical experience qualifies them as authorities.

There can be no question as to the value of tuberculin when we consider the accumulated evidence of the past decade, which one can derive from even a cursory review of the literature. A number of monographs, very comprehensive in detail, have been published in book form on this subject, and I need mention in passing only Reviere and Moreland's work in 1913 and Hamman and Wellman's book, brought out in 1914. Pottenger in his 1917 edition of "Clinical Tuberculosis," vol. 2, devotes a chapter of about sixty pages to tuberculin, and in Forscheimer's "Therapeutics of Internal Diseases" there is quite a lengthy article devoted to this subject. There is, however, a question as to how we can interpret or evaluate the conclusions that various statistics tend to show as to the specific usefulness of tuberculin. Here I might say we have as yet no definite guide or measure by which we can positively prove this point. At present we are compelled empirically to go by the results of those who are qualified through large experience to express an opinion and by careful study of our own experience in the actual treating of a large number of cases. My results in conjunction with those of others warrant the conservative statement that the judicious use of tuberculin in carefully selected patients is of great value in bringing about an ultimate arrest of the disease process. This is especially true when combined with proper hygienic and dietetic measures. In reference to this particular

*Read before the Trudeau Club of St. Louis, January 5, 1922.

phase I will quote from the writings of several authorities which have appeared in the literature during the past three years.

Meyer Solis-Cohen⁸ has this to say: "Failure of tuberculin treatment is probably due to inability to determine the appropriate dose for the individual patient, which may be one millionth of a milligram in one patient and one tenth of a milligram in another of apparently the same type owing to wide differences in tuberculin hypersensitiveness and tuberculin tolerance. The usual method of giving practically the same initial dose does harm to those who should take less and is ineffectual in those who require more. The correspondence between tuberculin hypersensitiveness and tuberculin tolerance suggests the determination of the therapeutic dose for each patient by the amount of tuberculin that gives the minimal reaction when injected in that patient intracutaneously. The success of this method in children has been demonstrated in nineteen cases whose initial dose varied from one hundred millionths to one hundredth of a milligram, and were increased ten times to 120,000 times during periods of from 1 to 21 months, practically without producing an unfavorable reaction in any. A large proportion show improvement in general condition, reduction in temperature and gain in weight."

Robt. C. Patterson⁷ states that in two to five per cent. of cases tuberculin is of great value. In acute and febrile cases it is contraindicated. He says that patients with more or less chronic diseases who have arrived at a stage of semi-arrest, but who still have cough and expectoration and are in good general condition, are the most suitable cases. He also states that any form of tuberculin may be used. He terms the decade of 1900-1910 as the era of small doses and no reactions. At present only a small percentage of physicians are employing it therapeutically. He claims that it does not produce an immunity, antibodies in the serum which are inhibitory to the growth of the tubercle bacillus, nor the development of tubercles in the tissues. In other words, it cannot have a serological effect in curing tuberculosis. However, it is known that tuberculin produces a definite inflammatory effect in and around tubercles when given in sufficient doses. This has been demonstrated clinically in patients. The object of its administration is to produce small focal reactions which are enough to cause a localized inflammation but not so great as to cause a spread of the disease. Unless focal reactions are produced, tuberculin is practically worthless in therapy.

H. Parker Hitchens, writing in the 7th edition (1918) of Sajous' *Analytic Encyclopedia*

of *Practical Medicine*, advocates the use of tuberculin in properly selected cases. He also quotes various authorities, Lawrason Brown and others.

Lawrason Brown⁹ lays great stress on the diagnostic value of tuberculin. He says the failure to react to 10 mg. of tuberculin given subcutaneously is absolute evidence that the subject is not tuberculous. He reports a series of 224 patients who were given this test; 42 failed to react to a second dose and were sent home as not having tuberculosis. None of these cases as far as he could determine ever reapplied for admission to the sanatorium for treatment. He does not mention anything about its use as a therapeutic measure. I might quote from a number of other authorities and investigators on this subject but lack of time and space prevents me from doing so. I might state that it is almost a universal opinion that tuberculin has a distinct place in the treatment of pulmonary tuberculosis. I shall now give a brief survey of the history and use of tuberculin up to the present time.

In 1890 Robert Koch first prepared tuberculin and after experimentation suggested its use as a curative agent in the treatment of tuberculosis. This announcement created great enthusiasm and aroused the hope that at last a cure had been discovered. During the following two years tuberculin was used without discrimination and with unexpected disastrous results. In 1891 Virchow, the great pathologist, protested against its use from experience gained at autopsies. This resulted in its virtual abandonment by the profession, although a few investigators still continued to experiment with it. In 1903 tuberculin received an unexpected stimulus owing to the investigations of A. E. Wright¹¹ and his school into the mechanism of immunization by bacterial products in general, namely his vaccine therapy and opsonic index. He laid emphasis on the necessity of proper dosage and the proper intervals between doses. Since that time we can definitely trace a gradual increase in its use and an optimism tempered by previous experiences with which investigators again took up the subject.

Tuberculin is a product prepared from the tubercle bacillus, the active principle being the toxin of the organism. Its clinical nature is not definitely known but it belongs to the protein group. The name was first used in 1884 by Pohl Pincus, who read a paper before the Berlin Medical Society in which he proposed a method of immunization and treatment by means of bacterial extracts and the use of various terms tuberculin, variolin, scarlatin, to describe these extracts.¹² Koch himself first designated his old tuberculin, lymph, and it

was known for some time thereafter as "Koch's Lymph." The varieties of tuberculin may be classified under three groups, according to the manner in which they are prepared:

1. Those containing only the soluble products of the tubercle bacillus in the media in which they are grown.

2. Those consisting essentially of the insoluble fragments of the tubercle bacillus, *i. e.*, endoplasm.

3. Those containing both 1 and 2.

Koch's Old Tuberculin, T, is an example of the first type. Koch's New Tuberculin, TR, of the second, and Koch's Bacillen Emulsion, B. E., of the third. In other words, we may call the first an extract, the second endoplasm, and the third extract plus endoplasm.

Von Ruck prepares a watery extract and claims good results from its use. Another preparation is an albumose-free tuberculin, that is one in which the tubercle bacilli are cultivated in an albumose-free medium. It was thought at one time that there was some essential difference in the use of these various types, but experience has shown that such is not the case. In fact, one type is virtually as efficient as any other, the use of any particular kind depending upon the personal choice of the physician. Personally, I have had equally good results with Koch's O. T. and B. E.

To us the question naturally presents itself, what are the physiological, serological, pathological, and anatomical reasons if any why tuberculin offers a means towards the cure of tuberculosis. Much work has been done by various men, notably Baumgarten, Jurgens,¹³ Ziegler,¹⁴ and others in experiments on guinea pigs. They conclude that tuberculin does not give bacterial immunity. It is generally found that in animals the best results are obtained with living vaccines and further that artificial immunity is not attained with tuberculin. The experimenters state that conclusions must be based on actual results obtained at the bedside. Thus if we desire a reliable source of information as to the value of tuberculin we must turn to clinical statistics. In reviewing the literature one will find a vast amount of work done, but its value depends upon the source that it is derived from.

Koch's early results were disappointing. His instructions as to the method of applying tuberculin were ignored from the very beginning and today his methods are not employed. The arguments for its use today are based on a plan guided by our present knowledge. We must accept statements only of those who have used tuberculin and not those who thinking it dangerous have never tried to employ it. Tuberculin can no more be considered a sovereign remedy than hygiene, diet, rest, or any other

factor. Whether the results from its use are more favorable than from these, we cannot say. Until a specific cure is discovered we should not ignore any helpful factor. The healing effect of tuberculin is one of gradual stimulation and not in sudden cures.

In selecting cases for treatment it is primarily a question of suitable ones and the great difficulty here arises in definitely determining the extent and activity of the lesions. Today the X-ray is a deciding factor as to the extent of the tuberculous involvement of the tissues but it does not inform us as to the activity of the infection nor the amount of resistance that the patient has. This, one can only determine by careful and prolonged observation of the patient. Experience teaches us that the most amenable cases for treatment are the incipient and the chronic moderately advanced types.

Reliable statistics covering life duration of patients are those of Saranac Lake Sanatorium.¹⁵ They cover a period of 15 years and show that tuberculin treated cases do better, especially the moderately advanced. In incipient cases the balance in favor of tuberculin treated is not large. The ultimate results in their series of cases is as follows:

	<i>With Tuberculin</i>	<i>Without Tuberculin</i>
<i>Incipient</i>		
Apparently cured.....	88	78
Disease arrested.....	77	78
Active.....	33	27
<i>Moderately advanced.</i>		
Apparently cured.....	91	86
Disease arrested.....	48	45
Active.....	41	22

In another series, Kremser¹⁶ chose 110 patients expectorating tubercle bacilli, treating 55 of them with tuberculin. The patients were not selected but were placed in groups alternately as they were admitted. Of those treated with tuberculin 22, or 40 per cent., lost the bacilli; of those treated without tuberculin only 16, or 29 per cent., lost the bacilli. Similar results and experiences were met with by Phillipi,¹⁷ Turban,¹⁸ Bandelier,¹⁹ E. Lowenstein,²⁰ Pottenger,⁶ and many other workers, all giving statistics corresponding to those above quoted.

E. Lowenstein²⁰ reports conclusions on a series of 682 open cases. No case reported that did not reach the dose of 10 mg. O. T. Four sputum examinations were required to establish a patient as negative. Under tuberculin treatment 361 of the 682 cases showed negative sputum, a percentage of 53. Such results he maintained cannot be obtained in any other way than by tuberculin. His analysis of the results of 20 years of hygienic-

dietetic cure without tuberculin gives only 15 per cent. of the discharges as having no bacilli in the sputum. These results coming as they do from competent observers dealing with their own material can have but one interpretation and significance. The conversion of an open infectious to a closed (a much less infectious) type would in itself justify tuberculin therapy. I might go on and quote the experience of numerous other observers and they would all practically show similar results.

If we assume that these statistics are absolutely reliable, the question would naturally arise: if tuberculin has any specific properties as a curative agent does it then in any way affect the pathology of a given case? If it does, then we ought to find evidence to that effect in autopsy findings. Ziegler,¹⁴ Spengler,²¹ Trudeau,¹ and many others virtually arrive at this conclusion: "That the study of autopsy material does not show any changes around the tuberculous tissue indicative of a dangerous reaction, when tuberculin is given for treatment cautiously; and that on the other hand there is no evidence of the existence of a healing process other than that seen to occur without tuberculin." The natural healing of tuberculosis proceeds only somewhat by absorption and largely by fibrosis, or encapsulation more or less perfectly, and that tuberculin produces the same effect. The question then suggests itself, if the healing with and without tuberculin is qualitatively the same, is there any quantitative difference? The opinion of Ziegler is that there is a greater tendency to fibrosis in those treated with tuberculin than in those not so treated. Petruschky²² and Rohmer²³ make the same observation. Pearson, Gilliland and Jurgens¹³ noted the same condition in animals. Koehler²⁴ observes that there is less calcification in those treated by tuberculin. Neuman found less caseation. All authorities agree as to the presence of more fibrosis than is usual in the untreated. Hence the relative absence of calcification may be interpreted as an evidence of a healing influence of tuberculin; in other words, there is more resorption and encapsulation and therefore less need of calcification.

* We might conclude from this that tuberculin is not a cure-all but a remedy that induces the usual healing to take place more rapidly than it otherwise would. This being the observation of competent and trustworthy pathologists makes more confirmatory the clinical evidence as shown in statistics and greatly strengthens the viewpoint of the clinicians. One might draw attention here to the fact that the nature of human autopsy material is necessarily such as to make the cause of tuberculin weaker rather than stronger, since where the treatment

has been most successful the material is not obtainable. From the foregoing we can readily see that there is at least an anatomical basis for the use of tuberculin.

We might now inquire into its physiological action. What are the theories if any upon which the assumption of its beneficial effects are founded? The theory which explains the fact most simply and perhaps most satisfactorily is the one brought forward by Wolff-Eisner.⁵ He supposes the production primarily by the tissues of the tuberculous of a specific antibody capable of breaking down the tuberculin molecule, with the formation of toxic products, much in the same way that a digestive enzyme breaks down an albumen molecule into a simpler and highly toxic albumose. The antibody he calls a lysin (tuberculo-lysin), and it is immaterial to the theory on its broad basis whether it is a property of tissue cells or of the blood fluid. According to this, then, we have (1), in the non-infected organism no lysin present. The injected tuberculin is not broken down and remains circulating as a harmless foreign albumen until eliminated. (2) In the infected organisms the tuberculin meets lysin at the site of injection and is broken down with the formation of a toxin which produces the local reaction. If sufficient in quantity, this toxin reaches the general circulation and causes a "general reaction," and finally a "focal reaction" by irritation of the tuberculous focus. Finally the injection leads to a fluctuation of definite size in the tide of antibody content in the blood, leading to an increase probably of bacterial lysis, of bodies leading to tolerance, the antituberculin of Wassermann and of opsonic power.

Animal experiments and clinical evidence seem to bear out these assumptions. This reaction is termed tuberculous sensitiveness and bears a striking relation to anaphylaxis. Von Pirquet's cutaneous test is illustrative of the first part of this theory. We may sum up the physiological action of tuberculin as follows:

1. In the healthy (tuberculosis free) no action at all.

2. In the tuberculous sensitive (tuberculous subject) a reaction followed by a period of tolerance to tuberculin.

- (a) *Sensitiveness.* The loaded state ready to lead to discharge on the introduction of the tuberculous bacillus and its products. Supposed to serve for destruction (bacteriolysis) of any bacilli introduced from without or extruded from a focus of disease into surrounding tissue, resulting in the liberation of toxins which cause symptoms known as tuberculin reaction.

- (b). *Tuberculin reaction.* This is the effect of the toxin liberated from tubercle bacilli

within the body or tuberculin injected from without. It consists of local hyperemia (if tuberculin has been injected), of general symptoms and of a focal hyperemia at the focus of the disease, or of any one or more of these.

(c). *Immunizing response.* This term refers to the whole effect of a therapeutic dose of tuberculin.

(d). *Tolerance.* The condition developed in an individual where repeated large doses of tuberculin and autotuberculin can be borne with impunity.

METHOD OF ADMINISTRATION

Various methods of giving tuberculin have been proposed and tried out. The cutaneous, subcutaneous, oral, rectal, inhalation, and inunction. The subcutaneous is by far the superior and most universally employed method for therapeutic purposes. The cutaneous and inunction are employed principally for diagnosis. All agree as to the importance of beginning with small doses but there is a difference of opinion as to the proper increase of dosage. There are two schools, (1), that of Denys, Trudeau,¹ Bandelier,²⁵ Roepke,²⁵ Sahli,³ and most German and American therapeutists, which, using clinical observation as a guide, seeks to carry the patient by gradually increasing doses to as high a degree of tuberculin tolerance as possible; and (2), that of Wright,² whose method is to determine the dose which will cause the greatest increase in the opsonic index and then to repeat the same dose over a long period of time lowering or raising it from time to time as may be indicated by the opsonic index. There are still a few therapeutists, however, notably Lowenstein²⁰ and Moller, who believe reactions are of value and regulate their doses accordingly.

My personal experience has convinced me that the method of the first school is most practical and gives satisfactory results. The initial dose that I begin with in adults is one ten thousandth of a mg. and in children one one hundred thousandth. Injections are made twice a week watching carefully for local reaction. When the patient reaches the higher doses, namely, one one hundredth of a mg. or more, I begin giving them once a week and finally only once every two weeks. In this manner a high grade of tolerance can be established and maximum doses of one to ten mg. are attained. The course of treatment usually takes from six to eight months, depending on the individual case. The primary object of this method is to get your patient on large doses of tuberculin as soon as possible without producing unfavorable reactions. In patients where you are able to establish a tolerance to tuberculin, a marked improvement in symp-

toms is usually observed. Cough and expectoration are diminished. Tubercle bacilli disappear from sputum more often than in untreated cases. As has been observed by others, tuberculin treated patients appear to have less tendency to relapse than those not treated. Trudeau believes that one of its ultimate effects is the prolonging of life. His statistics show from 18 to 25 per cent. more of patients living, after a lapse of from one to fifteen years, among those treated than among his untreated cases.

When you come to the selecting of patients a great amount of experience and judgment must come into play. Obviously the most suitable cases would be all incipient ones. Secondly, all afebrile chronic types that occasionally have acute exacerbations. Third, all cases that have become afebrile but still show various signs of an active process. Fourth, latent cases where prophylactic treatment may be given.

Patients not suitable are first, mixed infections. Second, advanced pulmonary tuberculosis. Third, cases that are complicated with other organic diseases such as nephritis, cardiac, etc. Fourth, any case that is febrile. Today I never give tuberculin while the patient is running a temperature. I usually wait until the fever has been reduced and, of course, this can be accomplished by rest in bed and other factors. Then when conditions are favorable, institute treatment. Tuberculin has received its bad reputation principally through its indiscriminate use. It is self evident that a moribund case will not be improved, yet often has tuberculin been administered to such cases in the expectation that it might be beneficial.

I will give figures of my own work but I am not unmindful of the fact that the same set of cases may be made to look good or bad, depending upon whether I am for or against the use of tuberculin. I shall, however, present to you the plain facts and permit you to form your own opinion. With this end in view I shall report the following cases and you may judge for yourself whether an equally good result could be obtained by the use of any other treatment than tuberculin.

During the past ten years I have treated with tuberculin 72 patients in private practice. Twenty-eight were diagnosed as incipient or early tuberculosis; Twenty-four moderately advanced, and twenty far advanced. They were all active cases—in other words had subjective and objective symptoms of pulmonary tuberculosis. The 20 advanced or third stage patients were treated between 1911 and 1915 and were given tuberculin in order to find out whether or not it had any influence on the progress of the disease. Most of these patients

were febrile and bed-ridden. All were given tuberculin from 2 to 10 months, with no apparent improvement or change in the physical signs. Of this series nineteen died while under my care and the remaining one left me and entered the hospital where he finally died. They all had positive sputum and three had tuberculous laryngitis. In none of these advanced cases was there any improvement which I could attribute to tuberculin.

Of the 24 cases diagnosed as moderately advanced, or second stage, 19 had positive sputum and 5 negative. Six of them, three of whom had positive sputum, are living today and are in an arrested state after from one to six years' observation. Of the remaining 18, two passed away at the end of six months treatment; seven died at the end of one year, five passed away during the second year and one in the third year; three were lost from observation. They all were given tuberculin, some attaining doses as high as forty mg. over a period of six to eight months. The per cent. of recoveries in this series was twenty-five. I cannot say positively that tuberculin was an important factor in the clearing up of these cases but the impression I gained was that it benefited the patient and they themselves were anxious to receive the treatment. With one exception, as far as I could ascertain, did tuberculin therapy do any harm in this series. When after two to three months' administration there was no improvement in the patient's condition it was discontinued. However, in one patient, owing to lack of experience in using tuberculin, I believe I brought on a severe hemorrhage from over-dosage, which ultimately hastened his demise. This taught me a lesson and my other cases profited by the experience.

Of the 28 diagnosed as incipient or early tuberculosis, 12 had positive sputum and 16 negative. Of this series 23 became arrested cases after being under treatment for a period ranging from six months to three years. In three patients the ultimate results are not known because they discontinued treatment. They, however, showed improvement as manifested by increased weight and subsidence of other symptoms, although at the time of stopping treatment they were still considered active. In two patients after four months' therapy there was no improvement and tuberculin therefore was discontinued. The ultimate outcome could not be ascertained as they passed from under my care. Of the 23 arrested cases, nine had positive sputum which became negative at the time of discharge and has remained so since then. Of the two unimproved patients, one had positive and the other negative sputum. I may say that in all these cases the sputum was examined a number of times. The max-

imum gain in weight in any one patient at the time of arrest was fifty-four and one-half pounds. The minimum gain was six pounds. No patient was pronounced cured or in an arrested stage until after six months' observation. Several of them have been under my observation for a period extending from six months to eight years. One patient had a fistula following an incision of a tuberculous cervical gland which had discharged for three years. This healed up during the course of tuberculin treatment for his pulmonary condition and has remained healed for over four years. One case complicated with cervical adenitis did not improve. In this series 12 were females and 16 males. Their ages ranged between 19 and 51 years.

CONCLUSIONS

My conclusions from the review of the literature and from my own treatment of 72 cases carefully observed in my private practice and many other cases which were treated in public clinics under my direction are as follows:

1. Tuberculin in the hands of those trained in its use still is our best remedy when employed in conjunction with hygienic and dietetic measures.

2. Its use could be much amplified by a more thorough examination of patients who are slightly ill and in the early recognition of the disease.

3. It gives excellent results in the treatment of tuberculosis of the eye.

4. Its use in pulmonary tuberculosis is attended by good results in properly selected cases.

5. Many authorities claim good results in bone and joint tuberculosis.

6. Statistics show good results in glandular tuberculosis.

My review of the current literature up to the present day reveals the fact that while here and there an authority has discontinued or disapproved its use, many, on the other hand, still favor tuberculin and highly recommend it both as a diagnostic and a therapeutic measure.

University Club Building.

BIBLIOGRAPHY.

1. Trudeau: Artificial Immunity in Experimental Tuberculosis. *N. Y. Med. Jour.*, 1903, LXXVIII, 195.
2. K. von Ruck: Sixteen Years' Experience with Tuberculin and with Other Products of the Tubercle Bacillus in the Treatment of Pulmonary Tuberculosis. *N. Y. Med. Record*, 1907, LXXII, 382.
3. H. Sahli: Contribution to Discussion of Tuberculin Treatment. *Brit. Med. Assoc.*, 1910, *Brit. M. J.*, Lond., 1910, II, 1056.
4. Cit. Hamman & Wellman, 1914 Ed.
5. Cit. Reviere & Morland's Tuberculin Treatment, 1913, 2nd Ed.
6. Pottenger, 1917 Ed. Clinical Tuberculosis, 2nd Vol.
7. Robt. C. Patterson: 1921 Ed. Tice's Practice of Med., 2nd Vol.

8. Meyer Solis-Cohen: A Method of Determining the Appropriate Dose of Tuberculin for the Individual Tuberculous Child. Arch. of Paediatrics, Nov., 1920.
9. Lawrason Brown: Certain Points in the Diagnosis and Treatment of Pulmonary Tuberculosis. Am. J. of Med. Sciences, Sept., 1920.
10. Hamman in Hamman & Wellman's 1914 Ed. on Tuberculin Treatment.
11. A. E. Wright in Lancet, July 25, 1903.
12. Riviere & Morland's Tuberculin Treatment, 1913 Ed.
13. Jurgens: Experimentelle und Klinische Untersuchungen Über Tuberkulin. Ztschr. f. Exper. Path. u. Therap., 1905, I, 519.
14. Ziegler: Über das Koch'sche Heilfervoliren bei Lungen-Tuberkulose und Anderen Tuberkulösen Erkrankungen. Pathologisches-Anatomisches. X, Kongr. f. Innere Medizin, 1891, p. 130, Verhandlungen J. F. Bergmann, Wiesbaden.
15. Brown's chapter in Klebs Tuberculosis, p. 560.
16. Brown: A Study of Cases of Pulmonary Tuberculosis Treated with Tuberculin at the Adirondack Cottage Sanatorium. Ztschr. f. Tuberk., 1904, VI, 235.
17. Kremser: Tuberkulinbehandlung. I Versan. der Tuberkuloseartze zu Berlin, 1904, p. 35.
17. Philippi: Die Lungentuberkulose im Hochgebirge (Davos), 1906, Stuttgart.
18. Turban: Über Tuberkulin und Heilstättenbehandlung Lungenkranker., cit. nach Freymuth. München Med. Wchnschr., 1903, I, 1875.
19. Bandelier: Die Leistungsfähigkeit der Kombinierten Anstalts und Tuberkulinbehandlung bei der Lungentuberkulose. Beitr. z. Klin. d. Tuberk., 1910, XV, 1.
20. E. Lowenstein: Tuberkulinerfolge bei 682 Offenen Lungentuberkulösen. Deutsch. Med. Wchnschr., 1910, XXXVI, 1654.
21. Spengler: Festschrift für Robt. Koch, Jena, 1903.
22. Petruschky: Koch's Tuberkulin und seine Anwendung bei Menschen. Berl. Klin., 1904, Ht. 188, 1.
23. Rohmer: Tuberkulose und Tuberkulintherapie im Säuglings und Frühen Kindsalter. Arch. f. Kinderh., 1911, IV, 51 and 97.
24. Kohler: Tuberkulin und Organismus, Jena, 1905. Cit.
25. Bandelier & Roepke: Lehr. d. Spez. Diag. u. Ther. d. Tuber. 1908. Lawrason Brown: Osler's Modern Medicine.

SOME OBSERVATIONS ON THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

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So much has been written concerning the early diagnosis of pulmonary tuberculosis that most of this paper must needs be a repetition of well known facts. The writer does not claim credit for presentation of any new knowledge in this essay, but desires to call attention to some important signposts on the road to early diagnosis which have heretofore been overlooked in the search for more conspicuous signs.

FAMILY HISTORY.

Text-books of medicine have long emphasized the importance of family history in relation to possible tuberculosis, yet we see so many cases of active pulmonary tuberculosis in persons whose family is free from the disease, and so many instances where all other members of a family remain free from manifest tuberculosis many years after one member of that family has succumbed to the disease, that we must conclude that the relative importance of family history as a diagnostic index has been over-emphasized in the past.

PERSONAL HISTORY.

Acute Infectious Diseases.—Observations of a few years ago concerning the effect of mea-

sles and other acute infectious diseases on the tuberculin skin test have led to keen investigation of the relation of these diseases to tuberculosis. The outcome of these studies causes the author to feel that the inquiry into the past of the patient should include careful questioning as to the occurrence of such diseases as measles, influenza and pertussis. A prolonged period of debility following the acute illness should be particularly noted. It is altogether likely that a large percentage of such cases of tedious convalescence are due to tuberculosis which has been activated by the acute infection.

Previous Pleurisy.—The clinician should also inquire carefully as to any former attacks of pleurisy. More than ninety per cent. of cases of pleurisy with effusion are of tuberculous origin while approximately two-thirds of the cases of dry pleurisy are tuberculous. These figures show the importance of a history of pleurisy where a diagnosis of pulmonary tuberculosis is probable.

HISTORY OF PRESENT ILLNESS.

Having obtained an accurate record of the patient's former illnesses, the clinician proceeds to the inquiry concerning the nature and duration of the symptoms which may be regarded as a part of the present illness. Here the greatest of care must be exercised to obtain all the relevant facts and to give them proper importance in relation to diagnosis. Symptoms are usually noticed by the patient before the physician is able to discover physical signs of disease in the lungs. Hence it behooves the physician to be alert to discover any history pointing to tuberculosis, for a careful inquiry into the symptoms may lead us to a diagnosis while physical signs are still uncertain.

General Weakness.—The patient who complains of weakness, weariness on slight exertion and cough, always deserves careful investigation. Careful study of the history of such cases will lessen the number of our diagnoses of subacute bronchitis, unexplained anemia, etc.

Cough.—The first symptom noticed by the patient in most cases is a cough which is usually regarded as a manifestation of an acute cold. With the persistence of this cough comes weakness and loss of energy which is the most common symptom for which the patient consults a physician.

Dyspeptic Symptoms.—Loss of appetite and dyspeptic symptoms are also frequent early manifestations of the disease and may be attributed to lessening or failure of gastric secretion, caused either directly by action of toxins on the gastric mucosa or indirectly through the derangement of the vegetative nervous system. In fact, the primary complaint of the

tuberculous patient is often of symptoms referable to the stomach so that one often finds patients with pulmonary tuberculosis undergoing treatment for gastric disease.

Hemoptysis.—Hemoptysis is a relatively frequent event in the history of pulmonary tuberculosis and when it occurs very early in a period of activity often has a distinct value in that it acts as a guide-post to correct diagnosis for both physician and patient. Clinicians are now agreed that a definite hemoptysis of more than a dram of blood, not occurring during an epidemic of respiratory infections nor as the result of trauma, is presumptive evidence of active pulmonary tuberculosis. In eliciting a history of hemoptysis care must be taken not to include cases where the blood comes from nose, mouth or pharynx. Often the most painstaking inquiry leaves the physician in doubt as to whether the patient has had a true hemoptysis.

Pain.—Pain in the chest, while not often the chief complaint, is often among the symptoms noticed by the patient, and is usually due to involvement of the pleura in the tuberculous process. The pain is not often severe and in many cases is described as a feeling of discomfort or lameness rather than actual pain.

PHYSICAL EXAMINATION.

Physical signs of early activity in pulmonary tuberculosis are usually not conspicuous and definitely positive evidences of activity are very often absent in physical examinations of a case when history gives very positive evidence of tuberculous toxemia. Despite this fact there is no justification for failure to make careful and repeated examinations for confirmatory evidence in any case where there is a suspicion of an active tuberculous lesion. There are, however, some signs which are present in the great majority of active cases and are elicited by simple tests.

Temperature.—The first of these is fever. Given a patient with history of persistent cough, weakness and loss of appetite, one should always obtain a chart of the temperature and pulse taken at eight in the morning, noon, four in the afternoon and eight at night for three or more days. In such a patient, afternoon temperature of 99 degrees or above is strongly indicative of active tuberculosis, provided careful search fails to reveal other cause for the fever.

Pulse.—Along with the temperature chart a chart of the pulse should also be kept, for the pulse rate is an even more sensitive indicator of tuberculous toxemia than is the temperature. However, since the pulse rate is susceptible to emotional disturbances, mental reactions, and endocrine perversions to a marked degree,

one should be very cautious in using elevated pulse rate as an indicator of tuberculous toxemia in the absence of fever.

Loss of Weight.—Loss of weight, while not peculiar to the toxemia of tuberculosis, is such a characteristic feature of the disease that the weight should always be determined. Any patient who has not recently lost weight is almost certainly not the victim of an active tuberculosis of serious clinical significance.

Anemia.—The color and general appearance of the patient with early activity of a tuberculous lesion are likely to be very good, while marked anemia and cachexia may be interpreted as indicators of a disease which is relatively advanced both as to time and as to gravity of the toxemia. Hence a fair color and absence of cachexia cannot be interpreted as evidence against active tuberculosis.

EXAMINATION OF CHEST

Inspection.—Inspection of the chest is very important, for by this means one may detect an inequality in size of the two sides of the chest, undue prominence of a clavicle or retraction of an intercostal space signifying a pathological process inside which is not necessarily of recent origin. If the two sides of the chest be equal in size in the expiratory phase of respiration, but one side expands more than the other, we may consider the inequality of expansion as due to one or both of two causes: (a) Active disease with muscle spasm and consequent fixation. (b) An old lesion with fibrosis of lung and pleura and atrophy of the muscles of the chest wall. The latter condition does not preclude the possibility of an active lesion. Limitation of diaphragmatic excursion may likewise be due either to reflex fixation of active disease or to fibrosis which does not necessarily indicate activity. Limitation of diaphragmatic movement may also occur, hence it is well to examine for Litten's phenomenon in order to determine the diaphragmatic excursion.

Palpation.—Having carefully inspected the chest the examiner passes on to palpation, using his fingers to determine the thickness and tone of the muscle as well as to detect any atrophic changes therein. It may be briefly stated that hypertonicity of one trapezius or pectoralis major as compared with the corresponding muscle of the opposite side means an active process, while a flabby relaxed and atrophic muscle means a pathological condition of long duration. This method of examination, so thoroughly described and widely advocated by F. M. Pottenger, requires prolonged and careful training and practice to be of value and is not likely to prove efficacious in the hands of most practitioners.

Percussion.—In the demonstration of the presence of activity in a tuberculous lesion percussion is of great assistance only when it shows the presence of a pleurisy with effusion. Areas of dullness due to pulmonary fibrosis or to old pleural thickening or both may be demonstrated, but these are merely proof of former disease and give no proof of present activity, although with such findings the existence of the tuberculous activity is more probable. Likewise lessened resonance at one or both apices—narrowing of the so-called Kroenig's isthmus—though indicative of old fibrous tissue change in lung or pleura, does not prove the existence of active disease.

Auscultation.—Auscultation has been greatly refined since Laennec's invention of the stethoscope and has proven a great aid in the diagnosis of pulmonary conditions. But we have placed so much emphasis on the importance of auscultatory signs in tuberculosis that lack of positive auscultatory findings has often caused us to overlook or belittle other findings in the examination or points in the history which are positive indications of tuberculous toxemia. Careful auscultation of the chest is, as ever, imperative in any case where pulmonary tuberculosis may be suspected, but we must realize that the sound conducting quality of the lung and chest wall is not such as to make it possible for the examiner to hear adventitious sounds from all deeply seated lesions. We know that fine crepitant or subcrepitant rales are heard only when they originate near the ausculting stethoscope, while those originating deeper within the lung are smothered before reaching the stethoscope. Hence there must remain many foci of early tuberculous activity situated so remotely from the areas accessible to the ear or stethoscope as to give no auditory evidence of their existence and it follows that he who waits for auditory evidence before making a diagnosis of active tuberculosis will overlook a large percentage of the cases with early activity, and that such error will deprive many patients of their opportunity to recover. Many such cases progress to ulceration with resultant spread of their disease to other individuals; and thus prevalence of the disease is increased.

The auscultatory examination, even in the absence rales, may reveal evidence of an old tuberculous lesion, such as a d'Espine's sign indicating extensive enlargement of peribronchial lymph nodes or prolonged expiration and increased voice transmission at either apex which result from fibrosis of apical tuberculous areas. In this connection it is well to remember that most persons, even those in whom no history of past or present ill health is obtainable, show increased voice transmission and

prolonged expiration at or just below the right apex behind.

X-Ray Examination.—Every patient suspected of having tuberculosis should have both fluoroscopic and a radiographic examination. The fluoroscope, while not showing details of chest pathology as does the X-ray plate, shows gross changes, extent of diaphragmatic movement, chest expansion, and the extent to which the apices are aerated on deep inspiration.

The radiographic examination should be stereoscopic, for by stereoscopic plates or films one sees much more clearly the evidences of pathology in the chest. The plates or films have the advantage over the fluoroscope in that they show details of peribronchial thickening and other changes not clearly shown by the fluoroscope, but they do not show chest movement. The relation of the two methods is well summarized in the expression: "radiograph for structure, fluoroscope for function."

Correct interpretation of radiographs of the chest requires special training and is not to be undertaken by one unfamiliar with such work; nor should the opinion of the roentgenologist be given more importance than the history or physical findings which indicate an active process. In fact, the early lesions with little fibrosis cast little if any shadow upon the plate and it is largely the evidence of former rather than present activity which is seen by the roentgenologist. Hence it follows that, unless the pneumonic process be extensive, the roentgen ray diagnosis of active parenchymatous tuberculosis rests upon a very frail foundation. The writer uses the radiograph to determine extent of old lesions rather more than to find evidence of present activity, leaving the latter as a function of history, of temperature chart and, to a lesser extent, of physical examination.

Laboratory Examination.—The findings of the clinical laboratory are an aid in two ways: first to exclude other diagnoses which are compatible with the history and physical findings; second to obtain direct evidence of active tuberculosis. Some common conditions, such as subacute endocarditis and chronic malaria, may be readily mistaken for pulmonary tuberculosis. The former is easily excluded by blood culture and leucocyte count for chronic pulmonary tuberculosis without ulceration does not produce leucocytosis; the latter is diagnosed or excluded by the stained smear.

The sputum should be examined for tubercle bacilli in all cases from which a specimen can be obtained, care being taken to obtain an early morning specimen from the lungs and not from the nasopharynx. This examination should be repeated several times. If tubercle bacilli are found the case is usually not an early one. No

significance whatever can be attached to negative findings.

The tuberculin test has been used extensively in the diagnosis of tuberculosis, not always to the benefit of the patient. It should always be remembered that the test does no more than determine whether or not the patient possesses an allergy to tuberculin, and we have no conclusive proof that the degree of sensitization is proportionate to the extent of the lesion or to the gravity of the toxemia. Neither do we have any very definite data concerning the duration of the sensitive state after the subsidence of clinical activity. So a positive tuberculin test indicates merely that the patient has been sensitized by absorption of the tuberculo-toxin and does not always give much information concerning the gravity of the lesion, nor does it always mean that the lesion is active at the time of the test. Injection of a powerful poison such as tuberculin, to which the patient may be extremely sensitive, should always be done with extreme caution and the writer feels that the injection of tuberculin should not be attempted for diagnosis except under the direction of one who is expert in its use.

Use of the Von Pirquet cutaneous test is not attended with such dangers and the mechanism of the test is simple enough to be used by all physicians. A reaction to the skin inoculation, however, is merely an indication that the patient has at some time been infected with tuberculosis—not that he has an active lesion at the time of the test. Hence the test is of great value only in young children.

DIFFERENTIAL DIAGNOSIS.

Acute Bronchitis.—The differential diagnosis between pulmonary tuberculosis and simple bronchitis is not always easy. Sudden onset with headache, backache, feeling of tightness in the chest, and leucocytosis, point strongly to a simple bronchitis; but here it is well to remember that a quiescent tuberculous lesion may easily be re-activated by an attack of acute bronchitis, and an unduly prolonged period of coughing and debility following such an attack—especially in a young individual—should always be viewed with suspicion. The same is true of influenza. The writer has seen so many cases of active tuberculosis dating their illness from a definite attack of influenza that he feels that reactivation of old tuberculous lesions is one of the important effects of that disease. Patients frequently are found to have active pulmonary tuberculosis despite the fact that they date their illness from an acute onset with sore throat, headache, generalized pains in back and limbs, cough, and other symptoms, indicating that the acute invasion was an attack of influenza.

In such cases the history of the acute infection is very likely to cause much delay in arriving at a correct diagnosis and to result in a bad prognosis for the patient. Here we have no sure means of arriving at a correct diagnosis but are obliged to make searching investigation to rule out such conditions as sub-acute endocarditis or other focal infection resulting from the acute attack. Having excluded such conditions and satisfied ourselves that the three cardinal features—cough, afternoon fever, and loss of weight—are present, we may safely diagnose active pulmonary tuberculosis.

Chronic Bronchitis.—The differentiation between chronic bronchitis and pulmonary tuberculosis may be even more difficult, especially in those cases with marked bronchiectasis. Neither diagnosis excludes the other, for they may co-exist in the same individual and the clinician may even doubt whether the cavities which he discovers are tuberculous or bronchiectatic. History of comparatively little loss of weight or strength in such a case points to bronchiectasis rather than to ulceration as the cause of the cavity, while tubercle bacilli are nearly always found on repeated examinations of sputum if the cavitation is due to tuberculosis. Cavities situated near the apex are almost surely tuberculous, while bronchiectatic cavities are much more common in the lower half of the chest.

Hyperthyroidism.—Hyperthyroidism unattended by exophthalmos is not always easily distinguished from pulmonary tuberculosis and the possibilities for difficulty in this direction are increased by the fact that hyperthyroidism is frequent in pulmonary tuberculosis, each condition aggravating the other. Here it is altogether likely that the hyperthyroidism is due to disturbance of the vegetative nervous system incident to tuberculous toxemia. In a case of hyperthyroidism where pulmonary tuberculosis is suspected, the search for confirmatory evidence in the chest becomes doubly important.

Hyperthyroidism which is sufficiently severe to produce fever is attended by extremely rapid pulse and rapid loss of weight, while the tachycardia and loss of weight in a tuberculous subject with the same temperature may be mild. History of cough, hemoptysis, and pleurisy are important in cases of this character. Determination of basal metabolism may help in the differentiation, but some increase of the basal rate is inevitable in tuberculosis with fever. Since the routine care of the tuberculous patient is also beneficial to one with hyperthyroidism it is not always necessary to make the differentiation at once and the physician may

institute proper therapeutic measures while still uncertain as to diagnosis.

CONCLUSIONS

In conclusion the writer wishes to stress the following points:

1. Pulmonary tuberculosis is a very common disease.
2. Any patient having cough, loss of weight, and afternoon fever should be regarded as tuberculous until exhaustive examination and careful observation have been made.
3. History often points to pulmonary tuberculosis as the correct diagnosis while definite physical signs of activity are unobtainable on examination of the chest.
4. Alertness, thorough study, courage, and good judgment are essential to good work in diagnosis of pulmonary tuberculosis.

DISCUSSION

Dr. Charles Greenberg, St. Joseph: In speaking of percussion in regard to diagnosis of tuberculosis, it seems to me that it occupies an important place. In quite a number of cases it is almost impossible to get definite signs on auscultation in incipient tuberculosis, whereas if you should get a slight difference in the percussion note, particularly in the left apex, with accompanying symptoms of pulse and temperature, your diagnosis can be easily made.

Dr. Snider covered the subject very thoroughly and there is not much to say, except that I think he left out an important point, and that is, in auscultation the patient should always be required to cough, inhale and exhale, going over the entire chest in this manner. Frequently rales are revealed which were impossible to get on normal respiration. In a great proportion of cases, you will get rales when the patient coughs in this way, and not in any other. It seems to accentuate the cog-wheel respiration.

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GENERAL ANESTHESIA

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Dr. Foote in "Minor Surgery" says that the first step toward a successful anesthesia is to gain the confidence of the patient. Previous acquaintance may have established it, but usually the anesthetist is almost or quite a stranger; under such circumstances minute details are of great moment; personal neatness, familiarity with the apparatus, an unhesitating method of procedure, all produce an instantaneous effect on the unusually alert mind of the patient; just how the anesthetist is to impress his personality on the patient in the few minutes that are at his disposal, whether by earnest conversation, by almost complete silence, or by irrelevant remarks ("jollyng"), by a hand clasp, or by some other way—each in-

dividual must decide for himself; in some manner this confidence must be gained if possible.

Fear should be dispelled by the person and conversation of the anesthetist; the suggestion of an easy sleep or interesting dreams will often favor the beginning of the anesthesia to an extent surprising to one who sees it tried for the first time. Such a speedy and quiet induction also lessens post-anesthetic nausea and vomiting.

There are several instances on record of deaths of children and adults at the beginning of anesthesia which were due unquestionably to fright; in some of them no anesthetic had been given.

Bartlett recalls the case in which the fear of the anesthetic caused a fall of blood pressure from 140 to 80 in ten minutes. One of the most striking examples is a case reported by Probyn-Williams: A nervous boy 9 years old was placed on the operating table preparatory to removing his tonsils; the mask was placed over his face and a relative held his hand. Suddenly and before a particle of the anesthetic was dropped on the mask, the patient began to breathe rapidly, drumming his heels on the table and saying, "I'm going." The mask was taken off and attempts made to quiet him, but in a few moments he was dead; nothing was found to account for the phenomena except the fear which he had experienced.

Willard Bartlett says: "There is abundant evidence to show that fear can produce all sorts of disturbances in the human mechanism; the patients who come to operation are usually outwardly calm, heroically firm and determined, some even happy at the prospect of being free from their disease, but if one could fathom the innermost workings of their minds in many instances one would be astonished at the damage which this one factor alone has wrought, the harm having been done long before the time set for the operation."

Crile finds that patients and animals that are victims of nervous and physical assaults suffer practically the same degenerative changes in the brain cells; these cells increase considerably in size, and the cell membrane becomes broken, causing distortion of its shape; the nucleus, nucleolus and cell body having been broken down, a mere mass of cytoplasm alone remains and is incapable of regeneration. Crile and his associates have found that the brain cells respond in the same way when subjected to overwork, infection, drug poisons, shock, fear or anxiety.

Edith McKay Ross in a recent article in the *Am. Journal of Surg.* says: "Children espe-

cially, but also adults who exhibit great fear, appear to develop symptoms of acidosis more often following operation, and then even when there has been no trace of acid bodies in the urine beforehand. . . . The mental factor in this condition (acidosis) is a real one and we have come to the conclusion that more attention given to the night's rest which the patient gets before the operation, and more attention paid to the type of induction of anesthesia, would repay us."

Keen in his work on surgery says: "It is a remarkable fact that patients whose thoughts are made to run in pleasant channels as the anesthetic is first given, usually take the drug more quietly than those who inhale it in a condition of mental distress; this is particularly true of nervous women and children. When the fears of a patient who is conscious are developed into the terrors of semi-consciousness, in which the patient may imagine the most frightful accidents are taking place, it can be readily understood that profound nervous shock is produced. If possible the room in which the anesthetic is given should be different from that in which the operation is to take place in order that the preparations of the surgeons and nurses shall not alarm the patient; care should be taken that the room is also quiet and that persons do not pass in and out and slam doors. There can be little doubt that the mental condition of the patient does not receive enough attention from the average anesthetist to whom the constant administration of the drug becomes a matter of routine."

At the 1912 meeting of the American Medical Association the Committee on Anesthesia made the following report:

First. The use of chloroform as the anesthetic for major operations is no longer justifiable. Scientific investigation and clinical experience agree in demonstrating that necrosis of the liver (delayed chloroform poisoning) follows in a by no means inconsiderable percentage of cases. The mode of causation of this sequel is unknown. There are therefore no precautions that can be intelligently taken against it. Accordingly the surgeon whose patient dies in this manner a day or two after operation must face the responsibility of having knowingly taken an unnecessary chance—and lost. We see no reason to believe that in respect to toxicity there is more than a slight quantitative difference between chloroform alone and such chloroform mixtures as A. C. E., anesthol, etc.

Second. For minor operations also the use of chloroform should cease. In general it may advantageously be replaced by nitrous oxid or nitrous oxid-oxygen. It is a mistake to think that a fatality under an anesthetic is

necessarily due to an unusually large administration of the anesthetic. A previous condition of suffering or anxiety, or a prolongation of the anesthesia excitement renders a subject who would otherwise be able to resist a large dosage, liable to collapse even under a small dosage.

The practical importance of avoiding so far as possible all anxiety and pain has been demonstrated on the clinical side by Crile and experimentally by Henderson. It is noteworthy that Levy (with Cushny) has recently demonstrated that in cats a sudden heart failure (fibrillation) is induced by a period of light chloroform anesthesia, while this form of death is not inducible by deep anesthesia. Risks of this sort are far greater with chloroform than with ether and greater with ether than with nitrous oxid. As they cannot be foreseen they cannot be avoided except by replacing a dangerous anesthetic by a safe one.

Third. Chloroform is sometimes found convenient for initiating anesthesia in alcoholics or other difficult subjects. As a means of avoiding the ill effects of a prolonged period of ether excitement, the temporary employment of chloroform for this purpose is perhaps the lesser of two evils. It is justifiable only when nitrous oxid is not available. If chloroform is to be so used, it should be given as soon as it is evident that the patient will not go under ether readily. Unless the change to chloroform is made early, it should not be made at all. We wish especially to emphasize the point that chloroform should never under any circumstances be administered after a prolonged period (10 or 15 minutes or more) of ether excitement. Even a small administration of chloroform is then peculiarly liable to induce respiratory or cardiac death. As soon as full anesthesia is attained ether should be substituted.

The British Medical Association in 1900 investigated deaths under anesthesia and found that one death occurred in each 744 administrations of chloroform. Death under chloroform is due to auricular fibrillation from too light anesthesia or too abrupt readministration after partially coming out. It may also result from the injection of adrenalin in light anesthesia as in operations upon the nose.

De Lee in his work on obstetrics says that he quit using chloroform after having one secondary chloroform death in a normal case, and two after eclampsia. He now uses ether except in rare instances. Luttig reports 63 deaths from chloroform, five of which were obstetrical cases.

Induction with Ether.—Preliminary suggestion to overcome fear and apprehension should be used routinely. An outwardly calm

expression on the patient's face may be a mask which conceals a feeling of extreme dread of the operation. Reassuring suggestions given by the anesthetist as induction is begun will be of great aid to the patient in putting such fears out of his mind. The patient having had proper preliminary suggestion as well as the preliminary narcotic, induction is begun by slowly dropping the ether on the mask held several inches above the face. Too rapid administration in the beginning produces a feeling of suffocation and spasmodic coughing. A smooth induction, free from struggling, coughing frequent swallowing, etc., will usually be followed by a smooth stage of maintenance. In 90 per cent. of cases the first stage of the anesthesia can be passed through without any struggling or excitement on the part of the patient. This method of induction usually requires about ten to twelve minutes to reach the stage of light surgical anesthesia. It is my custom in giving ether, as soon as light surgical anesthesia is produced to arrange the masks and towels on the face in a position to allow one of the patient's eyes to be fully exposed to view. The eyeball offers one of the most important signs of the depth of anesthesia. As the patient enters the subconscious state or stage of light anesthesia, there is manifested in the movements of the eyeball the effect of the anesthetic on the motor oculi muscles; there is an intermittent contraction and relaxation of these muscles which produces an oscillation or to and fro movement of the eyeballs. This sign is very important and is practically always present, and is an infallible indication of the depth of anesthesia. As the patient reaches the depth of full surgical anesthesia the eye movements gradually cease and the eyes assume a fixed position, which is eccentric or away from the center, usually pointing outward. Deeper induction will then produce a paralysis of all the motor oculi muscles, and the eyes become centrally fixed and movements cease. This indicates that the patient is in deep surgical anesthesia.

Maintenance Under Ether.—The maintenance of the anesthetic under ether should vary in depth according to the needs of the patient in different stages of the operation. Manipulation of structures richly supplied with sympathetic nerves requires a deeper degree of anesthesia than when more superficial tissues are being handled. The anesthetist should anticipate the needs of the patient by carrying him to a lower level when necessary, maintaining that degree as long only as required. For instance, if the patient is to have a minor operation, such as a trachelorrhaphy, to be followed by a laparotomy the depth of anesthesia should be changed in time to pro-

tect the patient from shock incident to handling the peritoneum in light anesthesia.

Variable Maintenance.—"One occasionally sees a patient in the stage of maintenance forgotten for the time being by the anesthetist, because of his lack of knowledge of the signs playing before his eyes, and because custom has, so to say, decreed that his work of 'carrying the patient to the brink of the grave and leading him safely back again' is not quite so important as holding the retractors and looking into the patient's belly. Such a neglected patient may do one of two things: If the anesthetist wishes to make sure of not being disturbed during his observations, and as a safeguard against this annoyance, pours on ether without watching the patient, the latter may die, as occurred not infrequently under precisely such conditions. In this case the anesthetist is not discharged from the hospital for criminal negligence, but the cause of death is registered as cardiac failure or status lymphaticus, which, however, does not clear the anesthetist of serious guilt due to his negligence. Or should the anesthetist, bearing in mind these fatalities, in the course of a bird's eye view of the field of operations, stop giving ether for safety's sake, then the patient does the other of the two things—he vomits. This invariably directs the condemning glances of the operator to the anesthetist. As a result, anxious to cover up matters as quickly as possible, he does just the wrong thing. He immediately pushes the ether to the utmost. The onset of vomiting implies the return of the pharyngeal reflexes. The reaction to ether is now much as it was in the early period of induction; concentrated ether gives rise to spasm, rigidity, and delayed induction. The anesthetist, in his anxiety to bring the patient back to the stage of maintenance, defeats his own ends. The anesthetic should be given slowly until tolerance is established. It may then be pushed to the desired level without ill effects." (Flagg: "Art of Anesthesia.")

By synergy is meant the perfect co-operation of the vital forces or of drugs in order to produce beneficial results which individually would be impossible of accomplishment. A medicine or agent that acts synergistically promotes the action of another. The well-known H. M. C. tablets which were so widely used a number of years ago were an attempt to make use of the synergistic action of hyoscine and morphine. They fell into disfavor especially in obstetrical practice, because of the fact that dosage large enough to produce analgesia in the mother also produced cyanosis in the new-born child. This difficulty is now obviated by administering only one moderate dose of morphine combined with hyoscine, and

repeating the hyoscine only at proper intervals.

The combined use of a light, general anesthetic, induced by nitrous oxid and oxygen and a local anesthesia by the use of novocain is applicable to many cases in which the use of ether is contraindicated. Each of the agents used affects the nervous system in a different place and in a different way with a resultant anesthesia which is more nearly perfect than if any one agent is used.

Synergistic Anesthesia.—The late Sam'l J. Meltzer thus expressed the synergistic property of mag. sulph.: "When after the administration of a very small amount of ether, insufficient to cause anesthesia, an inefficient amount of mag. sulph. is injected intramuscularly, a profound anesthesia follows, which can be maintained for several hours." To Meltzer is due the honor of introducing mag. sulph. as an anesthetic agent.

At the Presbyterian Hospital in New York it has been definitely established that the addition of a small amount of mag. sulph. to the usual hypodermic of morphine increases the value of the hypodermic from 50 to 100 per cent. Meltzer, writing in the *American Journal of Physiology*, 1905, says: "Magnesium sulphate exerts a profound effect upon the nervous system. The hypodermic injection is painless, the effect seems to be exclusively of an inhibitory character. Complete anesthesia, including complete relaxation of all voluntary muscles, with subsequent full recovery in animals may be obtained by employing mag. sulph. in 25 per cent. solution subcutaneously. The *subcutaneous* injection of mag. sulph. never leads to an immediate or late appearance of diarrhea or more frequent stools. The salts are eliminated to a great extent through the kidneys. Absence of pain sensation and complete muscular relaxation can be fully developed before the stage of complete abolition of the conjunctival reflex is reached. Not a single instance was observed in which mag. sulph. produced an excitation. Intravenous injections are very toxic even in small doses."

From the foregoing one may conclude that mag. sulph. is a safe and potent agent to employ with morphine as a preliminary to general anesthesia. Two definite facts have been established:

1. When mag. sulph. (from 1 to 2 c.c.) is used with morphine (one-eighth to three-eighths grain) instead of plain water, and given by hypodermic injection, the value of the morphine is increased from 50 to 100 per cent.
2. Mag. sulph. (from 6 to 15 c.c.) given by hypodermic injection two hours before operation, followed by morphine (from one-twelfth to three-eighths grain) one hour before

the operation, when supplemented by nitrous oxid (the oxygen being employed in much higher percentage than usual) gives a safer and better relaxation than when ether is used alone.

I have had a limited experience in the use of mag. sulph. I have used it with morphine as preliminary medication in ether anesthesia. Also as a preliminary to the use of gas oxygen. I have also used it for the relief of post-operative pain in tonsillectomies done under local. My experience has convinced me of its value. Four to six c.c. of 25 per cent. solution containing one-eighth grain of morphine will be as potent to relieve pain as one-fourth grain of morphine, and produce a more lasting effect. In some unaccountable manner the mag. sulph. prolongs the pain relieving property of the morphine for ten to thirty hours.

Nitrous Oxid.—Nitrous oxid-oxygen, or gas-oxygen anesthesia as it is more commonly called, is now being generally used in the larger centers for induction in practically all major operations, and as the only anesthetic for minor operations in which a general anesthetic is used. It is replacing ether in many major operations. Its field of usefulness is growing larger every day. Generally speaking it is safer than chloroform, ether, ethyl chloride, somnoform, or any other mixture of anesthetics. It was used millions of times in the late war without a fatality due to its use; however, gas oxygen is not fool-proof and requires greater care in its administration than chloroform or ether. Practically all minor operations can be performed with great advantage under gas. Rapid induction, rapid recovery and lack of nausea make it a very attractive anesthetic for minor operations, whether performed in the home, office or hospital. Gas-oxygen with a minimum amount of ether can be used for many major operations, such as appendectomy, prostatectomy, cystotomy, etc. When a preliminary of mag. sulphate with morphine is given, one can obtain with gas-oxygen relaxation of the voluntary muscles. Lack of muscular relaxation has been the chief complaint against gas anesthesia. Cases with cardiac, pulmonary or kidney lesions become better surgical risks if operated under nitrous oxid oxygen. Morphine hyoscine and gas-oxygen is the combination now being used by some to produce twilight sleep. On account of the rapidity of its action, gas is used to relieve the pain of labor by administering it just as the patient feels the first sign of a uterine contraction coming on. The patient can thus be kept in an analgesic state for hours with no ill effects. In obstetrical operations, a gas anesthetic will prevent the risk of having a blue baby to revive.

Conclusions.—It is just as important to purge the mind of the patient of fear and worry by proper suggestion prior to the operation, as it is to give a preliminary dose of castor oil.

Delayed chloroform poisoning is probably not recognized in many instances; the use of chloroform even for obstetrical cases should be discontinued.

In giving ether or any other anesthetic, the anesthetist should know at all times the depth of anesthesia in which he is holding his patient. The eyeball movements offer one of the most reliable and important signs of the condition of the patient.

A solution of chemically pure magnesium sulphate injected subcutaneously with morphine increases the pain-relieving effect of the morphine from 50 per cent. to 100 per cent. and prolongs its effect from ten to thirty hours.

Nitrous oxid and oxygen will produce the safest anesthesia at our disposal. Major operations can be done under gas when it is reinforced with suitable preliminary medication, and combined with a minimum amount of ether. Cases in which ether is contraindicated can be anesthetized safely with gas-oxygen.

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SMALLPOX AND VACCINATION*

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ST. LOUIS

I take my text from the twentieth chapter of Exodus, thirteenth verse, according to the King James version: 'Thou shalt not kill. I hope the appropriateness of the quotation will be obvious before I finish. I accepted the invitation to take part in this course of lectures with unusual willingness for I sympathize with all efforts that tend to lessen disease and improve health and there are few subjects concerning which diffusion of knowledge is as important as smallpox and vaccination.

Smallpox is one of the most widespread of all diseases, affecting people of all races, climates and soils; rich and poor, old and young, dwellers in slums as well as those in palaces, in crowded cities and in isolated wilds. It is one of the most easily communicable diseases; one of the most painful to have and one of the most horrible to see; one of the most fatal and one that causes the most serious complications in those who survive; one of those of which the virus is most difficult to destroy and most likely to remain long in a dangerous

condition. On the other hand, it is one that offers the most certain protection for the individual or the community, viz.: by vaccination.

But prevention depends on an accurate cooperation of all citizens with an efficient health service. Good laws, even good laws carried out by trained and honest health officers, cannot do everything. We have seen in the wretched failure of the 18th amendment, backed by all the moral power and by the invisible and visible agents of the Federal government, how laws that affect the person must be assisted by the intelligent and willing efforts of the people. Fortunately, I have not the task of defending the 18th amendment, and I hope to show you why vaccination laws deserve your most thorough and cordial cooperation. This is all the more necessary because vaccination is one of the subjects most attractive to certain people, who for wholly unsatisfactory reasons love to obstruct the best interests of all. It would be useful to present before all voters some of the most important facts about smallpox and vaccination at regular intervals, but it is especially timely to do so now. Many experienced people believe the danger of smallpox greater than it has been for several years. We have seen a neighboring city within a few months develop an epidemic with, at last reports (December 19th), 351 cases and 132 deaths. We have seen traffic interrupted by this preventable disease, many people put to inconvenience, discomfort, loss of time and expense, possibly even illness, and all this when there are so many other things to do in the world, when there are bread lines in our own city and millions starving in Europe and Asia.

I have no intention of initiating you into the details of the symptoms of smallpox. They would be forgotten long before they could be used, I hope, and, on the other hand, would be quite likely to give some of you uncomfortable moments, because all diseases have symptoms in common that can be properly used only by those who are able to take an impersonal view. But it seems necessary to say something about the symptoms since many people have a wrong impression of the real facts. This impression shows itself not rarely when people assert they would rather have smallpox than be vaccinated. If they had the option of very severe vaccination or very mild smallpox and quarantine laws did not interfere, they might not be disappointed, but if they got the present Kansas City variety, with the chances of death thirty-seven in a hundred, they would lose. Even with a death rate of twenty-five per hundred, which is frequently reached in epidemics, the disease is a formidable one. Let us see what some of the features are.

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After a few days with symptoms that much resemble those of influenza or typhoid fever, but often with much more pain, the symptoms fade and the patient thinks he is better. About the time the temperature reaches normal the rash breaks out. This resembles a crop of pimples, and is often taken for that. In fact, the technical name for smallpox, variola, that came into use about 1500 years ago, is supposed to come from the Latin word *varus*, a pimple. The eruption rapidly becomes widespread from the scalp to the tips of the fingers and toes, affecting the mucous membranes of the eyes, nose, throat and air passages, and in severe cases, all mucous membranes of the body and even solid organs. As they develop the fever returns, the skin is the seat of intolerable burning and itching, which often leads to serious damage from scratching or tearing. The pain is especially troublesome in the eyes, throat and windpipe, in the tough skin of the palms and soles and under the nails. Swallowing may be unbearable on account of pain. In a short time each pimple becomes a sack of pus, or matter in common language. Doctor Schamberg took the pains to count the pocks in a moderately severe case. In a very severe one they run together and cannot be counted. He found more than 26,000. If we estimate that each pustule contains three drops of pus, the patient has in his skin about five quarts of matter poisonous to himself and a potential danger to others. The name pock, which goes back as far as Chaucer, was given on account of the pocket-like sacs of pus, the word *small* being added in the 16th century. In some languages, and even in the English of Scotland, the adjective *small* is not used. This stage of eruption may last a week or two and when we see it we can understand the horror of the disease. The face is swollen and deformed so as to be unrecognizable; the head may lose all resemblance to a human head. The patient is delirious, often maniacal, tries to jump out of the window or do other desperate acts, often showing uncanny skill in eluding nurses, stopping passers-by and being taken away from hospitals. It is this stage that makes smallpox the terror it is to those who know something of it. It is one of the few diseases that cause the sick to be abandoned by their nearest relatives. In one of the largest municipal smallpox hospitals in the United States I was told by attendants, some of whom had been there up to twenty years, that in all that time they had never been able to get a protestant minister to go to see a dying smallpox patient. In another city with an unusually large native American population, when the staff of a hospital quite away from residences offered to take charge of a few

smallpox patients, in an isolated building, the citizenry formed a cordon, with firearms of all sizes and fashions and refused to let anyone approach the hospital until the smallpox patients were provided with a more distant place, not inappropriately called a pest-house. Sometimes the course is extraordinarily short and rapid, and in the form commonly called black smallpox, in which extensive hemorrhages occur all over the body, death may take place within a few hours of the beginning of symptoms. In mild cases those that recover get over the severe symptoms in a week or two or three of suffering and then a few more weeks in which the dead skin drops off, six weeks being an average time for the whole process.

So striking a disease should not be hard to trace, and in fact we find that it was well known in China at least 3,000 years ago. Tradition points to it in Africa from time immemorial. In Europe it has been familiar since the 6th century and it was introduced into the Western hemisphere soon after the discovery of America. It exterminated whole tribes as early as 1508 in the West Indies and in Mexico is said to have killed 3,500,000 people in the first outbreak. Introduced into Hawaii in 1853, it killed 8 per cent. of the population in a few months. In 1863 it depopulated those earthly paradises Happa and Typee in the Marquesas Islands. The slave trade kept up a regular source of infection in South America until the middle of the 19th century. Everywhere for hundreds of years its ravages were extensive. It was considered an inevitable accident. Folklore made a proverb: From love and smallpox no one escapes. Some had it two or three times. The movies have made us familiar with the attack that killed the reprobate Louis XV at 64. Fate had allowed him to survive an attack at 14. Its occurrence is mentioned in the lives of almost everyone who was thought worthy of a biography in those days and a philosophic writer has suggested that the death of the Dauphin, son of Louis XIV, from smallpox, permitting the long reign of Louis XV, was one of the causes of the French revolution. In the middle of the 18th century it was estimated that one-tenth the population of Europe died of it, and one-fourth were killed, crippled or disfigured. In many cities epidemics gave death rates as large as one-third of all affected. In 1702 Boston, with a population of 7,000 had 302 deaths from smallpox. In 1721, one-half the people of that city had it and 850 died of it, or 77 per thousand population. We all remember the horror of the influenza epidemic in 1918, but it had a mortality of less than 9 per thousand.

But not only the severe cases of any given disease are important, though they monopolize

attention for a long period. Comparatively long ago mild cases of smallpox were recognized. Then it became known that certain cases once called smallpox differed so much from the rest that they were given a separate name—chickenpox, said to come from the French word for the chick-pea, which the spots were supposed to resemble. It was recognized that much as chicken-pox resembled smallpox, neither protected against the other, though each prevented, almost always, a second attack of the same kind. After the introduction of vaccination attention was called to still other cases, like smallpox, but milder. The name varioloid was given to this group and has continued in use, notwithstanding the fact that it causes some confusion. Varioloid means resembling smallpox, but all who have worked with it know that it really is smallpox in a mild form, either in a vaccinated or unvaccinated person.

For about twenty-five years much interest has been directed to other cases, usually even milder than varioloid, sometimes so mild as to be wholly unnoticed. The rash is scanty and often quite atypical, yet it has the same contagiousness as smallpox, and it seems capable of setting up severe cases or severe epidemics. This form became conspicuous in the United States just before and during the Spanish war. As the first cases seemed to be caused by people who had recently come from Cuba, it was called the Cuban itch, later Manila itch and many other meaningless names. More recently it has been identified with cases or epidemics in South Africa called amaas, or in South America, where it is called alastrim. Very extensive work in all these countries leaves no doubt that all are related, though the exact relations are not likely to be known until all details of the causative germs are worked out.

Until recently it was universally believed, on the ground of experience, that mild cases of smallpox may give rise to severe cases. Some very careful students of the subject think, however, that there are different strains that breed true. However, it is too early to draw sweeping conclusions on this subject, which deserves and is receiving extensive study. In the meantime, we must look with suspicion on all examples of smallpox-like diseases, the only safe rule being to consider each case dangerous until it is proved otherwise, and this includes cases of chickenpox, which should be reported, examined by experts and followed up just as carefully as genuine smallpox.

This brings us to consider the cause of smallpox. Here we have a remarkable situation. Everyone knows that in the last half century the living causes of many of the common diseases have been identified. Especially well known in this connection are malaria, typhoid

fever, tuberculosis, diphtheria, cholera, plague, tetanus, pneumonia, meningitis, leprosy and many others. But the causes of some others, such as measles, scarlet fever and smallpox, are still unknown. In the case of smallpox, our ignorance is emphasized by the fact that it was the first disease to furnish a method of protecting against it, long before the birth of bacteriology. That smallpox is caused by a living being cannot be doubted because it has to a remarkable degree all the features of diseases so caused. In other words it is infectious. It takes some time after exposure for evidences of its existence in the new body to show, because the germs have to reach a certain stage and degree of development before they can cause a reaction producing symptoms. It can be inoculated and cause identical symptoms in other people or animals. It gives protection for a long time against new attacks.

It is becoming more and more evident that smallpox is due to germs so minute that they are spoken of as ultra-microscopic (beyond the present reach of microscopic vision), or invisible germs. Now since by the aid of the microscope, assisted by the camera and stereopticon, we can easily magnify small bodies 3,000 diameters, that is, make them look nine million times their actual size, it would seem impossible that any germ could escape detection. But we know the smallpox virus can pass through porcelain filters that stop all the bacteria. Certain technical difficulties that are well known may soon be overcome and change the outlook. Even if disease germs are fairly large, like diphtheria bacilli or malarial parasites, we can see them only if they have a different refraction from that of the material in which they lie, or if we can dye them so as to make them contrast in color with other material around them. Without such aids, which often have to be highly specialized, the germs are likely to look like bits of indifferent material such as can be found in various kinds of body fluids, and unless we can cultivate them proof of their relation to disease is difficult. The search for the smallpox germ has revealed certain small bodies, so small that they might readily pass through a porcelain filter. Let us consider some figures that may assist in getting a clearer idea of the minute size of these bodies and hence the task of working with them. The suspected germs are about one-fourth micromillimeter, that is one-fourth of a millionth of a meter, in diameter. A meter is 40 inches long. To get the figures in relation to the body let us consider some other objects. A cubic millimeter is about the size of the head of a small black-headed pin. A cubic millimeter of human blood contains in round figures five million red blood corpuscles, which occupy

about half the bulk of the cubic millimeter. You can thus realize something of the smallness of the red blood corpuscle. A single one of the suspected smallpox germs on a red blood corpuscle would be relatively about as large as a silver quarter on a 35-inch automobile tire.

How does the smallpox virus get into the patient? Curiously enough, this has been worked at for a comparatively short time, because people once believed that smallpox came from errors in the human body, just as some people now think it comes from errors in their heads. We know that it is communicable. It passes from sick or convalescent to well by actual touch; thus it is directly contagious. We know that it is contagious indirectly through inanimate material, clothing, bed-clothing, mattresses, tools or eating utensils, coins, books, toys or any other objects that have been touched by patients or those recovered from the disease. We know it can be acquired at a distance from the sick or those who have recovered or from the clothing or hair of third persons who have been exposed to the sick or convalescent, or from contaminated goods. The matter of distance is interesting and important. In many diseases that were formerly thought to be contagious through the air, we have discovered that actual contact and even inoculation take place. I recall malaria, once thought to be caused by noxious emanations, but now known to be due to hypodermic injections by certain mosquitoes, and plague, as readily acquired as smallpox, is inoculated by fleas. But in smallpox there is still reason to believe that the germs may be carried through the air, and carried much farther than in the so-called droplet infection through the almost invisible spray thrown off in loud talking, sneezing or coughing. Just how far the air transport can be is not known. Some believe as much as a quarter of a mile, others more or less. When we consider that the germs are small; that out of direct sunlight they may retain their virulence for months, when we realize the aerial transport of disease factors like pollen, horse dandruff and the like, we can be prepared at least to take precautions against the aerial spread of smallpox, by isolation in secluded buildings, as much as possible. Contagion is possible in all stages of the disease.

And now let us look at attempts at the suppression of smallpox. The first efforts at escaping some of its horrors come down from remote antiquity in Asia and probably in Africa where smallpox was introduced at will by introducing material from a previous case into the body by the air passages, or under the skin, and it was introduced into Europe and America early in the 18th century, chiefly through the

efforts of Lady Mary Wortley Montague, wife of the Ambassador to Turkey. By taking the material from a mild case, known as "buying the smallpox," by having the new patient in good physical condition and by treating him with particular care learned by experience, an effort was made to avoid a more dangerous attack. This was fairly good for the patient as only one to three per cent. died instead of twenty-five to fifty, but was dangerous for the community, for it kept up the sources of smallpox. The persistence of the practice of inoculation shows how great was the fear of the smallpox acquired in the usual way.

It was long widely known that animals, especially dairy cattle, had a disease with an eruption much like smallpox, called cowpox, smallpox of the cow, or in Latin Variola Vaccinae. Other animals can be given a similar disease, but they rarely have it naturally. In the days of universal smallpox horses sometimes got the disease on the heels or muzzles, being infected by the hands of men who also either milked cows with cowpox, or who had smallpox. Only milk cows get smallpox, showing the human element in the infection. As soon as smallpox became rare, cowpox became rare or even unknown. It was almost as widely known that dairy maids or dairy men who got accidental infections from such cattle were immune to natural smallpox and refractory to the inoculated kind. It was experimented with by a number of men independently in England, France, Germany and even in Mexico, but for a long time no practical application was made on a large scale. Then in 1798, Edward Jenner, a physician of Gloucester, England, communicated the results of experiments he had made with a scientific accuracy not to be excelled even today. As a result he converted the legends of dairy maids into an operation that was in a few years applied all over the world, and even now gives the name vaccination to many kinds of inoculation other than cowpox. It would take too long to tell the whole story. Jenner had some beliefs that are perfectly valid today. He knew that the object of vaccination was to produce a sore with definite characteristics; that the operation should be aseptic or as free as possible from pus infection. He unfortunately had an exaggerated idea of the protection formed against smallpox by vaccination. This was due partly to the fact that he thought one attack of smallpox protected for life, and because his early subjects resisted smallpox inoculation no matter how often he repeated it.

On the whole, it was well that he had these views. If he had not, the world-wide experiment might have been long delayed. As it was, a remarkable change took place in the in-

cidence of smallpox wherever vaccination was used. This change lasted for several years, then smallpox cases became more numerous and within thirty years of Jenner's announcement there were many epidemics and these have continued down to the present time. It is not necessary to discuss all the explanations that were made. In fact, we could not understand many of the explanations, because for long after Jenner's time we had no exact knowledge of disease such as the study of bacteriology has made familiar in the last fifty years.

Let us get an idea of how smallpox has shown itself in the last fifty years.

In 1870 the last world-wide epidemic, or so-called pandemic, began. A gradual increase in the number of cases of smallpox had been noted in several European countries in that year. In France a conference on the smallpox danger had met in May 1870, but the members had to take up other duties when the war broke out sometime after. The troops under arms were not as well vaccinated as they should have been, and the reserves could not be revaccinated for lack of time. Very soon smallpox had increased to such an extent that in the words of Thiers it was more frightful than the war itself. Smallpox rapidly spread in France, in Germany, where it was often carried by French prisoners, and all over the world. In France over 200,000 persons were attacked and 60,000 or 27 per cent., of them died. In Germany there were 84,000 deaths in 1871; 77,226 in 1872. The total loss of life in Europe from the pandemic was estimated at half a million.

In Germany the lesson was carefully studied. The whole subject of smallpox and vaccination received an analysis such as had never been made before, and in 1874 a law was passed, the practical results of which were soon apparent, and continued year after year. This law of 1874 required the vaccination of every child before the end of the year following the year of its birth, unless it had had smallpox; every school child before the end of the twelfth year of life, unless it had had smallpox or had been vaccinated within five years. Those excused for medical reasons had to be vaccinated within a year after the supposed danger on account of which the operation was withheld had ceased. The number of cases of smallpox fell to figures not known before. From 1900 to 1914 the annual number in the whole empire was 90 to 434, more than one-third of them foreigners. Many of the cases were in Russian, Polish and Italian workmen, all imperfectly vaccinated or not vaccinated at all. Many were in persons who were exposed to the imported cases, and among these were occasional antivaccinationists. Other cases could be traced to in-

fected rags, in which there was a very active trade.

In France smallpox continued to be too frequent up to the end of the 19th century. Then in 1902 infant vaccination was made compulsory, with revaccination at 11 and 21 years. The law was not strictly enforced, and in 1906-7 and 1913 there were small epidemics. The total deaths in France in 1913 from smallpox were 431, 296 in Marseilles alone. During the war cases increased, being introduced from Spain, Algiers and Morocco. But the army was well vaccinated and revaccinated and not a single case occurred in it up to June, 1917.

In Russia in the early part of the present century there was very imperfect vaccination in many large areas, and there were from 70,000 to 165,000 smallpox cases annually with death rates of 30 to 50 per cent.

Austria had improved its vaccination practice for a number of years up to 1913, but the war brought back the old conditions, partly from interfering with the excellent work of the vaccine institutes, and in 1915 and 1916 the number of cases rose to 25,000. Nowhere was there any approach to the conditions in the wake of the Franco-Prussian war, and this difference was prepared for by the better vaccination everywhere, as compared with 1870.

The Scandinavian countries have always had very good smallpox statistics, with few cases and very rare deaths. The war caused an increase, and the experience led Sweden to revise her vaccination law. She now requires primary vaccination in the sixth year. Besides that, soldiers, sailors, those taking part in maneuvers, immigrants, workmen and all incarcerated persons must be vaccinated. If smallpox occurs all must be revaccinated except those who have had smallpox or have been vaccinated at least three times in the last five years. Conscientious objectors must submit a plea in writing, to be passed upon by the health authorities and a magistrate. A certificate is necessary to enter school, but children without certificates are admitted and their parents ordered to have them vaccinated within a month. If not, they are reported and fined. No one not successfully vaccinated, or vaccinated within five years, can serve in the customs service, navy, as a nurse or sanitary police officer, or as a candidate for courses in medicine or nursing.

In England, where vaccination began but where individual liberty had its most vigorous development and prejudice was not unknown, there were the best general hygienic conditions, good vaccine makers and well-trained vaccinators, but no thorough vaccination and from time to time small epidemics occurred.

Of the other countries in Europe it is not

necessary to speak at length. All had more or less unsatisfactory conditions.

In Asia we can see the whole history of smallpox in epitome. Vaccination makes its way slowly. Inoculation is still practised in some parts especially in Mohammedan countries by blowing the powder of smallpox scabs up the nostrils. Epidemics sometimes kill half the population of a village. The disease is considered one of the natural attendants upon childhood. We often think of the tropical diseases of Southern Asia, and it comes as a surprise to learn that in Siam smallpox kills more people than cholera, plague, malaria and dysentery together, while in Bombay and Calcutta it is almost as bad.

Japan has taken up vaccination as thoroughly as some other innovations. Vaccination is there obligatory at one year, revaccination at nine, but the active intercourse with the mainland introduces many sources of infection.

Africa has always been a smallpox infested land. Nevertheless, the British were able to keep it from becoming epidemic in Uganda during the war, by vaccinating natives, using 129,000 portions of vaccine material.

The Philippine Islands have furnished one of the numerous lessons in vaccination. Before the American occupation smallpox was a constant and fatal disease. Forty thousand deaths annually from it were not uncommon. Vaccination was practiced on a large scale after the entry of American troops, the native water buffalo being used to furnish vaccine virus, and the incidence of disease dropped to figures not known before. From 1909 to 1916 no death occurred from smallpox in the City of Manila.

Mexico is still one of the homes of smallpox and as in all such places children under 10 years furnish a large proportion of fatal cases.

Porto Rico and Cuba, former hot-beds of the disease, have been practically free since the Spanish war, and the introduction of vaccination as well as of improved hygiene.

In the United States for many years we have had a mild type of smallpox, with sometimes no deaths in thousands of cases. How many cases there are and how many deaths, we do not know for not all are reported and tabulated. I will show a lantern slide later that gives the number in twenty states, and one giving the number of deaths for eleven years in only part of the country, for many states are not in the registration area. The total figures for the twenty states are:

1920	68,610
1919	40,315
1918	54,051
1917	28,943

Missouri is one of the states not in the registration area. It is a fact generally true that smallpox does not develop well in countries with good statistics, for good statistics depend upon well-trained and active health officers, backed up financially, morally and physically by public opinion. Practically all cases of smallpox in the registration area occur in individuals who have either never been vaccinated, or vaccinated so long ago that protection is lost.

After this long sketch of smallpox let me discuss some of the features of vaccination that bear on the continued existence of smallpox. If it is effective, as I have said, in protecting against smallpox, why is it that we still have so much of the latter? This is a question everyone should ask himself and he should try to get the true solution. Like all good causes vaccination has suffered much from the over-enthusiasm of its advocates. Just as Jenner was mistaken in some respects, so many people now are far too dogmatic in their statements and in their enthusiasm overlook many essential details. It is necessary in order to get good results to know all the details regarding the benefits and also the limitations of vaccination.

Smallpox still exists sporadically in many countries, and in the United States in many towns and almost all large cities, and becomes epidemic at times. But while both number and severity have always varied from time to time, great epidemics and severe cases have become fewer, mild cases relatively more frequent, since the use of vaccination. When we consider the much more active movements of people and of goods of all kinds since 1800 than before that, movements that would favor the spread of contagious disease, this fact becomes very significant. Judging from experience with influenza and some other diseases we should expect it to be even worse than before 1800.

Although mild cases of smallpox were known before, they have come practically to replace the severe forms in many extensive areas, such as the whole United States, Brazil, large parts of Africa. This might be due to a weakening of the virus, and in some cases probably is so, but occasional severe cases or epidemics, as in Kansas City, shows the danger of acting on the belief of a general and permanent loss of virulence. Part of the change, at least, must be due to a different disposition to smallpox on the part of many people. Since this change does not come from previous smallpox it is not explicable on any other ground than vaccination. The idea has been advanced that because vaccination has made smallpox so mild that its recognition is easily missed, and that from such a mild un-

recognized case severe cases might occur, it would be better to stop vaccinating so that the type would become more generally severe. This is the same sort of argument we often hear about measles, scarlet fever and other diseases of childhood, that it is better to expose children to all known catching diseases so they will be through with them. The idea needs only to be carried on to all avoidable accidents, such as swallowing lye, playing with fire, jumping on trucks or freight cars, to show its fallacy. In the case of measles and scarlet fever the confession indicates a lack of confidence in the value of public health measures. In that of smallpox, it overlooks the enormous protection given by the most complete and most perfect vaccination.

One of the most striking changes since vaccination began has been the difference in the age of smallpox patients. This was not due to a greater disposition to smallpox in childhood. When it was always present, children were soon exposed to it and got it. Hence the name "Kinderpocken." When the virus got into a new community or one where it had never been before, as Mexico and the South Sea Islands, young and old alike were affected. In well vaccinated countries children now are relatively rarely affected, but the fact that they still have the disposition when not protected by vaccination can be seen in all localities where vaccination is neglected or imperfectly practiced. As they grow up the immunity wears out and in the exposure of everyday life those with the weakest immunity get smallpox.

Vaccination has never been as general as it should be or as it is believed by many to be. The disposition to smallpox is universal. Without vaccination, all not protected by smallpox would get it if exposed. Destruction of the virus is difficult. Unvaccinated persons are picked out with remarkable frequency in every epidemic. The more there are of such unprotected people, the greater the chance of each one being infected and also the greater the danger of even vaccinated persons getting smallpox, for the protection by vaccination is only relative, not complete and absolute. This is readily seen by an examination of the vaccine conditions of smallpox cases everywhere.

A common statement among those who oppose or disbelieve in vaccination is that smallpox exists even in countries with vaccination, or with compulsory vaccination. Those who advocate vaccination admit the fact, but draw from a careful study of the facts the conclusion that the cases depend upon imperfections in the practice and that what is needed is better vaccination. Germany, for example, with its enormous smallpox epidemic following the war of 1870-71 is often advanced as proof of

the failure of vaccination. It is the proof of the failure of a single vaccination, a fact well enough known long before. When it is also said that in Germany revaccination was also long practiced, that is a mistake. Revaccination was general only in the army, where it was begun in Prussia, in 1834. The great freedom from smallpox of the revaccinated soldiers as compared with the civil population was one of the things that brought about the revised law of 1874. A lantern slide will, I hope, make the difference easy to recognize.

Carelessness and over-confidence explain a large part of the revival of smallpox a few years after Jenner's announcement. At first there was great enthusiasm for vaccination, then as the horror of smallpox was forgotten, and while new generations were coming on, the operation was neglected. Many young people were not vaccinated at all, those who were gradually wore out their one-time immunity. One can see in every epidemic how the sight of scarred faces stimulates voluntary vaccination and it is a matter of common observation on the Eastern frontier of Germany that pock-marked faces of the Russians and Poles stimulate vaccination in the German population. The duration of immunity by vaccination varies so much that definite figures cannot be given. While a single vaccination may protect for life, repetition at intervals of not more than ten years makes for safety, while all who are frequently exposed to smallpox should be vaccinated every year.

In some countries there is a so-called conscience clause in the vaccination law. By virtue of it a person, or a parent for a child, may claim a conscientious objection to the operation and so be excused. It might be supposed that this would not greatly affect the proportion of vaccinations made in any place, but this varies. I once had to take part in the general vaccination of a student body of 3,000. Only one person, a young man, claimed exemption on conscientious grounds, but when he was told all his fellows were getting vaccinated even he withdrew his plea. On the other hand, parents often claim exemption for their children and this sometimes makes a dangerous proportion of unprotected people in all places where the practice exists. In England this often occurs. We are told of a school in California in which 300 pupils out of 500 were exempt, a proportion that endangers not only the unvaccinated, but everyone. It is cheering to see that in that advanced state the courts have recently ruled that the conscience clause is unconstitutional, because it tends to prevent the operation of the law of which it is a part. This would seem a most rational decision.

Another thing that long interfered with the

complete effect of vaccination was imperfect material. Jenner showed that the vaccine sore is a highly specific product, and that any departure from it lessened its value. But in the early days not only was material taken from very imperfect sores, but pretended vaccinations were made from boils and ordinary sores of various kinds. The first operations were made from what was called natural cowpox in cows. We now know that this was merely smallpox in the cow, but a smallpox that was so altered in the animal that it lost its power to spread through the body, its power of contagion except through breaks in the skin, and its severity.

When cowpox was not available human material was depended upon, either taken from the arm directly to another arm, or dried on glass and so preserved. Foundling asylums were the storehouses of arm to arm vaccine, and for about a hundred years a continuous strain was kept up in the Foundling Asylum in Vienna, descended from Jenner's material.

It was found that serious dangers were associated with human vaccine virus, especially on account of the possibility of transferring tuberculosis and syphilis, and about fifty years ago material cultivated in calves, originally from natural cowpox, was introduced and rapidly replaced the human kind. This industry has now reached a high degree of perfection, so that we can get vaccine material of good specific action and free from harmful germs. But there are still certain imperfections in the vaccine industry and practice, and these are more serious in countries without thorough vaccination laws. In such countries the demand for vaccine is irregular. An epidemic of smallpox calls for more than the makers may have ready and then the material that has not been thoroughly tested upon animals, for potency and purity, will be forced into use. If the practice were regular the needs could be accurately prepared for. If the work is done at a time of year when accidental infections and common diseases are relatively uncommon, as in late spring and early autumn, many complications would be avoided. Moderately warm weather permits the wearing of thin clothing, less likely to injure the seat of operation than tight and heavy garments.

An objection still advanced is that in vaccinating we introduce a disease into our bodies. As a clever critic pointed out early, doctors gave people a new disease though they were not able to cure the old ones. This argument is very weak. The effect of the cowpox inoculation is not different in its action from that of infections that are going on very often in the human body. An inflammation in the skin from the rubbing of a hair follicle and start-

ing the activity of the germs always in the skin, is different only in that it is a little more dangerous than vaccination and does not give and protection against another and more dangerous disease as vaccination does. The infections around the teeth and in the tonsils that so many people have, are also much more dangerous than vaccination, and serve no good purpose so far as we know. And there are many more such foci of disease in almost every body that need not be discussed now.

There is still a widespread idea that vaccination causes a large sore, like a crater, with severe pain, high fever and alarming symptoms. Some people are proud of their narrow escapes, thinking the protection against smallpox is in proportion to the severity of the sore. All this is wrong. The true vaccine vesicle is a very harmless thing not in itself likely to set up dangerous symptoms. The bad sores, formerly too common, were due chiefly to infections from dirty fingers. The lockjaw that sometimes occurs has the same origin. Millions of vaccinations without complications show what can and should be attained. In all cases the operation should be followed up by experts, and any accidental variation treated according to its characteristics.

The vaccination scar has long been an object of dislike or fear, yet from a wrong motive. The objection arose at a time when vaccine material was contaminated, the operation carelessly done, and people were not informed of the danger of infection from dirty fingers. A genuine, uncomplicated scar is not a deformity, but if anyone objects to having one where it would show in the present style of full dress, the operation can be done on parts of the body easily kept covered.

Another objection to vaccination is based on the belief that by general hygiene assisted by quarantine, smallpox can be eradicated. There is a fallacy here depending on the fact that each infectious disease requires certain particular measures besides those included under the general idea of public health. So, no matter how complete the sanitation of the place, typhoid fever may flourish if a "typhoid Mary" handles food. A few mosquitoes in a gutter pipe can make ineffective the most complete hygienic conditions on the ground, and so on. Up to the present time we have found no method of protecting against smallpox that approaches in certainly systematic vaccination. If we ever do, it will be easy to make the substitute.

We can see in almost any epidemic how misapprehension of the relative value of vaccination and so-called sanitary measures does harm. The most important and first thing to do is to

vaccinate everyone already exposed or likely to have been exposed either to the original patient or to suspects. The next thing is to follow up all exposed and all suspects, wherever they may be. Instead of this we sometimes hear of the militia being called out to surround an institution and to keep up a state of siege for many weeks. Just enough time to vaccinate all hands would be very much safer, and in the case of an institution like a jail or asylum, if all were vaccinated on admission, no smallpox epidemic could occur.

Another common occurrence that shows misunderstanding is the closing of schools when smallpox breaks out. So in Kansas City children were obliged to be vaccinated or excluded from school. If all had been vaccinated in the beginning, the revaccination would be comparatively easy. Not everyone can be safely vaccinated at a given time, because some will have skin diseases that make it unsafe to vaccinate them. The child excluded from school can hardly ever be kept off the street, or looked after as well as it can be at the school by teachers, nurses and physicians. If the children who cannot be vaccinated are surrounded by vaccinated people in school and at home, they are partly protected.

A serious danger is introduced by obliging people during an epidemic to get vaccinated at their own expense. This is proper for well-to-do people under ordinary circumstances, but in other cases is likely to result in inferior work. Moreover, the operation is not done merely to protect the individual but the community, therefore the community should bear the expense. It should also be done by experts, and accurate records should be kept in every case.

It would be a serious mistake to speak of vaccination in St. Louis and not show how much is done by the Board of Health and the School Board. The Board of Health keeps a close watch on all suspected cases of smallpox, promptly segregates under excellent conditions all cases found, vaccinates and follows up all suspects. It also keeps up and distributes vaccine material of good quality.

But probably the best defense of the city against smallpox comes from the extensive vaccination of school children. This is not as complete as it should be, because too many parents, not aware of the real facts, fail to secure for their children the benefits of the school vaccination. But notwithstanding, there is a large cross section of the population immunized at a very important age. Two examples from the report of the Health Commissioner show the pro and con of vaccination very clearly. In a school not under the control of the authorities a boy was found sick with small-

pox. General vaccination was not permitted by the school authorities and within three weeks a second case was discovered. This led to the authorities taking charge of the school, but as out of 480 pupils 315 had never been vaccinated, 39 cases of smallpox resulted before the official vaccination put a stop to the epidemic. This shows the weakness of waiting until a preventable disease occurs. The other possibility was shown by the history of a boy who came to St. Louis with smallpox and entered two public schools in succession. The regular vaccination required by the school authorities revealed the fact that he had smallpox then, yet not a single case of smallpox occurred in either of the schools attended by him. It is interesting to note that at the very time these two experiments were going on, misguided people were bringing suit to prevent the vaccination of school children, and the health officers were obliged to spend a large part of their time in preventing a decision that in all human probability would have resulted in the death of many citizens.

Barnes Hospital.

SUPPURATIVE DISEASES OF THE PARANASAL SINUSES WITH PARTICULAR REFERENCE TO THE DIAGNOSIS AND TREATMENT*

EUGENE R. VAN METER, M.D.

ST. LOUIS

Rhinology may be classed as a new specialty as compared to otology and ophthalmology, both of which have long been recognized specialties. They are all so closely allied that one can scarcely stand without the support of the other. Ophthalmological observations in particular have led to many advances and observations on the part of rhinologists, and *vice versa*.

Max Schaeffer in 1885 brought forth the approach to the ethmoidal labyrinth, entering through the aggar cells and working backward and upward with a curette, preserving intact the middle turbinate. Later, 1892, Grünwald presented a classic study of the suppurative diseases of the paranasal sinuses, to which in 1899 was added much valuable information by Hajek, of Vienna. Much has been written since that time, a complete history of which would be of no particular interest here. Greenfield Sluder, since 1900, has undoubtedly gone deeper into the subject and has contributed the most comprehensive, definite, and unerring observations on non-sup-

*Read before the Des Moines County Medical Society, Burlington, Iowa, Dec. 13th, 1921.

purative diseases of the paranasal sinuses and their associated lesions. Jonathan Wright, of New York, 1909, was the first to substantiate Sluder's clinical observations from a pathological standpoint. He was able to show pathologically what Sluder saw and demonstrated clinically.

Anatomically, the nose was first described in detail by Zuckerkandl in 1882. Much has been added to his work by numerous authors, but of the more recent and modern writers A. and L. Onodi, of Budapest; Mosher, of Boston; Warren B. Davis, of Philadelphia, Loeb and Sluder, of St. Louis, have probably given the most comprehensive and detailed anatomical observations.

ANATOMICAL CONSIDERATION

I will not go extensively into the anatomy of the nose, but certain points in the diagnosis of paranasal sinus infections make it necessary to emphasize particular anatomical relations within the nose. There is perhaps no other part of the human anatomy so subject to anatomical variations. The topography of the meati varies greatly in gross. The paranasal cells vary so greatly numerically and in relation one to the other as to make necessary only a repetition of descriptive anatomy that has been most thoroughly and completely dealt with by Mosher, Onodi, Sluder, Loeb, Davis, and many others. I will, therefore, only touch upon the most essential points.

For convenience of description, the paranasal cells have been divided into an anterior and posterior group, according to which meatus they enter. The anterior group, made up of the frontal, anterior ethmoid and maxillary cells enter the middle meatus; the posterior group, being the post-ethmoidal and sphenoidal cells, enter the upper meatus. The greatest variation in the frontal sinus is in its size and shape. It may be as small as a pea and so far removed from its normal location as to be considered absent (as the frontal) and anatomically considered an anterior ethmoid cell, or it may be enormous in its proportions, extending far back over the orbit and laterally to the external angular process of the frontal bone and up to the hair line. It communicates with the vault of the middle meatus of the nose through the nasofrontal duct, which leads into the infundibulum and hiatus semilunaris, that funnel-shaped groove formed by the uncinate process in front and the bulla ethmoidalis behind. The middle turbinate comes forward here from its attachment to the lateral wall of the nose and, as it were, hangs over this outlet from the frontal sinus, and also over the outlet, or outlets as the case may

be (for there are often several small openings), from the anterior ethmoids in this immediate vicinity. They are, however, usually posterior to and on a slightly lower level than the frontal sinus opening. In the hiatus semilunaris is the constant ostium of the maxillary sinus, which is also hidden from view by the overhanging middle turbinate. Over the anterior half of the middle turbinate is distributed the greatest amount of cavernous or erectile tissue of this vicinity. It can readily be seen how a swelling of this tissue from an acute coryza or from whatever cause, or a crowding outward of the middle turbinate from any cause, will make it act as a flap valve and partially or completely cork up any one or all of these openings from the sinuses. It can also be readily seen how by direct continuity and contiguity the infecting organism of an acute coryza can be brought within the confines of the sinuses and retained there either partially or completely in the manner above described.

ETIOLOGY

The most important factors in the etiology of suppurative paranasal sinus disease are coryza and the acute infectious diseases, i. e., scarlet fever, influenza, smallpox, measles, etc. The general configuration of the nasal fossæ and trauma may be considered as contributing factors, as may also infected tonsils and adenoids in children (as quoted by Dean in his recent article on "Paranasal Sinus Disease in Children").

The teeth are held by some authors to be, in a large percentage of cases, responsible for the infection of the maxillary cell. Opinions vary greatly. Hajek places it at 8 per cent., Logan Turner at 30, Luc at 50, and Tilley at approximately 100 per cent. The relation may be conservatively placed at about 20 per cent.

The anatomical relationship of the paranasal cells plays a large part as an etiological factor, thus infection may travel from one cell to another by direct continuity or, as in cases of secondary infections of the antrum to other anterior cell infections, the infection enters the antrum through its natural opening.

DIAGNOSIS

There are many diagnostic points and appliances in existence pertaining to the paranasal cells. Some are direct and certain. Some are indirect and uncertain. We have to consider in diagnosis the following: (1) Symptoms, local and general, such as pain, tenderness, headache, fever. (2) The condition of the mucous membrane. (3) Presence of pus in the nose. (4) Transillumination.

(5) X-ray. (6) The nasopharyngoscope. (7) Antrum puncture. (8) Suction.

The symptoms, either local or general, are by no means diagnostic when considered alone. The general symptoms are such as might occur in any febrile disease. They are, general aching, fever, headache, nausea and vomiting, vertigo. They may all be present or absent. There may or may not be a discharging nose. Tenderness is a more constant symptom in anterior cell infection. Headache may or may not be present, but is usually a constant symptom and a valuable guide when localized. Frontal headache may be present in infection of any of the anterior group of paranasal cells. Occipital headache points to involvement of the posterior group. While localized parietal headache points to an involvement of the ethmoids alone. Pain or tenderness is usually present in both acute and chronic suppuration of the frontal sinuses and is elicited by pressure at the inner angle of the orbit. Pain is not a constant symptom in antrum infection, but in a number of cases may be elicited by pressure in the canine fossa or over the cheek. Fever is by no means a constant or reliable symptom and as a diagnostic point is negligible. Nausea and vomiting are often present in acute infections of the paranasal cells, and may have significance relative to the toxicity of the invading organism.

The condition of the mucous membrane is a most valuable guide in diagnosis. In acute sinus infection it is usually red, swollen or edematous and wet, with mucus, mucopus or pure pus, according to the stage of development.

The condition of the mucous membrane in chronic paranasal cell infections presents an entirely different appearance. There is usually more or less hyperplasia of the mucous membrane covering the turbinates. Distended blood vessels are visible to the naked eye; especially is this a valuable diagnostic point in chronic suppurative post-ethmoiditis or sphenoiditis, when seen in the superior meatus or over the face of the sphenoid by means of posterior rhinoscopy, or the Holmes' nasopharyngoscope. It is not, however, a differential point as the same thing occurs in non-suppurative hyperplastic ethmoid and sphenoiditis.

The presence of pus in the nose is a valuable aid in differential diagnosis. The mucous membrane can be wiped free of pus and viewed repeatedly. If pus reappears in a few minutes in a particular location we know that it does not come from the mucous membrane at that particular point but collects there by gravity drain from a cell or group of cells lying above it. Pus draining from the frontal, anterior ethmoid or maxillary cells, will in-

variably be seen coming from under the anterior tip of the middle turbinate. That draining from the antrum may or may not show at that point, but may drain backwards and be seen coming from under the posterior tip of the middle turbinate when an accessory opening to the antrum is present. Pus from the posterior ethmoid drains down over the posterior tip of the middle turbinate unless its course be changed by a considerable swelling or turgescence of the posterior tip of the middle turbinate, when it may be seen anteriorly coming down over the anterior tip of the middle turbinate, or somewhat back of this point. Pus from the sphenoid will be seen high up in the olfactory fissure or sphenothmoidal recess. It is absolutely necessary in the examination of this region to have powerful illumination. If the secretion is profuse it may be seen by the ordinary light, either gas or incandescent electric, but if it is scant and very thin it will often be overlooked unless viewed under stronger illumination. For this purpose sunlight is perhaps the best, but when used with a concave mirror sunlight is too hot to be tolerated for any length of time by the patient. In our clinic at Washington University we have established the routine use of a diminutive arc light for post-nasal examinations. This gives a very powerful white light and has the advantage over sunlight of being always available.

Transillumination as a diagnostic aid is untrustworthy because of the varying density of the bone and also the varying density of pus when present within the cells. The same is true of the X-ray. Sinuses known to contain pus have been X-rayed and a negative report given. They have also been reported as positive and, when subsequently opened, found to be perfectly normal.

The Holmes nasopharyngoscope is a valuable diagnostic aid. It is a diminutive periscope, carrying a small electric light at the distal end. In dealing with children upon whom it is impossible to do posterior rhinoscopy it is invaluable. In adults it enables us to view the ostia of the various sinuses with great frequency.

The puncture, and lavage of the maxillary cell is our one certain means of diagnosing empyema of this cell. Its wall is punctured in the lower meatus and repeated washings are made. The macroscopic presence or absence of pus is required to make a diagnosis. Ten or fifteen minutes after lavage, the middle meatus should again be inspected and if pus be found under the anterior tip of the middle turbinate we know at once that it is coming from the frontal or anterior ethmoid cells, or both, and this raises the question as to whether

or not the maxillary cell is acting as a receptacle for the pus draining from the sinuses above. This can be decided only after the frontal and anterior ethmoid have been cleared up.

Suction was first used in diagnosis by Seifert and Bethi. They made use of the Politzer bag for their negative pressure. Any means of producing negative pressure within the nasal chamber will answer the purpose. The idea depends upon the suction of pus from the accessory sinuses into the nasal passages where its visibility furnishes a guide to the particular sinus or sinuses involved. It is not always certain of accomplishing its purpose, but has often proved useful in my hands.

COMPLICATIONS

As complications we may have any of the secondary lesions attributable to focal infections, such as arthritis, cardiac and renal lesions. Orbital and intracranial complications have brought about much discussion in the past. The observations of Sluder on headaches and eye disorders of nasal origin were published in book form in 1918. Many of his subsequent observations have been recorded since that time and latterly, before the Southern Medical Association, at Hot Springs, Ark., he presented a monograph entitled "Some Rhinological Experiences in Ophthalmology" in which he brings out the many diseases of the eye that are secondary to intranasal lesions and the fact that they are amenable to nasal treatment or surgery. The inner wall of the orbit may be fractured in surgical operations followed by considerable hemorrhage into the orbit and a corresponding degree of exophthalmos. I have never seen an infection of the orbit follow this accident but it can readily be seen that it might easily happen.

General septicemia is an exceedingly infrequent complication. Unfortunately, after scanning the literature, the only case I am able to report is that of my own, which occurred last April following an operation for drainage of a chronic empyema of the right antrum. The patient died on the fifth day following the operation. The blood showed a pure culture of the streptococcus hemolyticus.

TREATMENT

The treatment of suppurative diseases of the paranasal cells is divided into general and local.

The general treatment depends largely upon the case in question. Acute cases should be handled as should those of any acute infection, i. e., by rest in bed, restricted diet, large

quantities of water should be taken, and laxatives or sedatives given if indicated.

Chronic cases are usually ambulatory. A general physical examination should be made of all cases and the general treatment and consideration of the case left largely to the internist.

The local treatment also depends largely upon the individual case and, whether it be surgical or non-surgical, its object is primarily that of drainage. Non-surgical acute cases are given close observation and general care and, with the exception of a one and one-half to two per cent. hypertonic saline nasal douche as a cleanser and mild, non-irritating astringent, no local treatment should be used unless specifically indicated. If signs of retention are present, or if drainage be not sufficiently encouraged by the above treatment, adrenalin 1:2000, or cocain in 5 per cent. watery solution, may be used to shrink the swollen edematous tissues about the ostia. This often gives good results but the effect is not lasting. Suction may be used after shrinking the tissues and aids in the evacuation of pus, especially from the anterior group of cells. Chronic cases often yield to local treatment and when uncomplicated by serious eye lesions (or other serious toxic lesions) it should be given a trial. The treatment should consist of three or four irrigations daily with the hypertonic alkaline salt solution. This is done by the patient at home. In addition, daily instillation of a solution of phenol in liquid alcohol, grs. 3 to the ounce, should be made by the physician, high up between the middle turbinate and the septum to reach the posterior cells, and directed upward under the anterior end of the middle turbinate to reach the anterior group. The application of mild astringents to the middle meatus, where hyperplasia exists, is often followed by marked improvement. A 2 per cent. solution of silver nitrate or a 1 per cent. formalin solution may be used.

The local treatment of antrum empyema, whether acute or chronic, is that of puncture and lavage followed by instillation through the trocar of some mild antiseptic solution which is allowed to remain in the antrum.

SURGERY OF THE PARANASAL CELLS

In the great majority of cases acute frontal sinusitis gets well spontaneously or with the aid of local treatment. In chronic cases, and in an occasional acute one, it often becomes necessary to thoroughly drain these cells. As I have stated, Max Schaeffer, in 1885, advocated the approach to the cells from inside the nose, entering through the aggar cells. His views met with strong opposition at the time

and gave way for a number of years to those of Tilley, Luc, Ogston and others, who advocated gaining access to the sinus by means of an external operation. Owing to the frequency of meningeal complications and the terrific deformity following these operations they were soon largely replaced by that of Killian who, in 1895 and later in 1902, described his method of incision through the eye-brow with preservation of the upper orbital arch, whereby complete exposure of the frontal sinus was obtained and less deformity resulted. By extending his incision downward beyond the inner angle of the orbit he gained access to the ethmoidal labyrinth and, working backward, curetted out these cells back to the face of the sphenoid, which he then entered. Killian's operation has been greatly modified but probably remains the choice of external operations to the present time. External operations have, however, practically given way entirely to the internal. The more expert the surgeon is in intranasal surgery the fewer external operations he does.

Ingalls, in 1905, reported a series of cases beginning in 1893 in which he drained the frontal sinus through an enlargement of the infundibulum and insertion of a gold tube with a flanged end into the sinus, the flange serving as a retainer. This proved more satisfactory so far as the drainage of the one cell was concerned. Casselberry at about this time mentioned having used a burr to enlarge the natural opening, working from below upward. This proved dangerous, however, and in 1907-08 Ingalls and Skillern described a device by which a probe having first been introduced into the sinus an electric trephine was introduced over it and an enlargement of the duct obtained. The good results from these various operations were, in the majority of cases, of short duration for, owing to the contraction of scar tissue and the subsequent development of hyperplastic tissue, the openings would soon close. Uffenordt, in 1907, revived the ideas of Schaeffer advocating the approach to the frontal through an anterior ethmoid or pre-frontal cell and removal of the uncinat process. He then worked backward and upward, curetting out the ethmoid labyrinth and then opening the sphenoid, preserving the middle turbinate intact. Mosher, in 1912, advocated the same approach, preserving the middle turbinate as a guide or landmark and later removing it. The most recent revival of this technique appears in a paper given by J. A. and F. J. Pratt, of Minneapolis, which was read before the Rhinological Section of the American Medical Association at Boston last June. Their technique varies only in minor detail from that advocated by Schaeffer in 1885.

The operations thus far described are accomplished by means of curettage, which is necessarily a scraping, gouging process whereby there is great destruction of mucous membrane that gives rise to the subsequent formation of fibrous tissue and adds to the already existing hyperplastic condition of this area.

The operation which I have adopted, and which is used exclusively in our clinic at Washington University is that presented by Sluder before the American Laryngological Association in 1916. This technique has been used by Sluder and his associates over a period of many years and never has a fatality or meningeal complication resulted from the employment of this technique. One of the salient features of Sluder's technique is the high cribriform incision, which may be placed with mathematical accuracy at from 2 to 2½ mm. from the cribriform plate, whereby the uppermost cells of the ethmoid labyrinth are opened wide into the nasal cavity, whether they be cells of the ethmoidal labyrinth proper or an extension of the posterior cells into the body of the sphenoid bone. Furthermore, this is an absolutely clean incision and not a curettage, whereby the mucous membrane lining the outer wall of the ethmoid labyrinth is left intact with its epithelial covering but slightly disturbed. Moreover, it can be limited to the anterior ethmoids and frontal, or can be carried back to include the posterior ethmoids and sphenoid, or it can be carried through the orbital plate of the ethmoid for the evacuation of an orbital abscess.

TECHNIQUE

Anesthesia.—Local anesthesia is preferable to general in that the co-operation of the patient is maintained and hemorrhage is undoubtedly less profuse under local than under general anesthesia. Trunk anesthesia of the entire outer wall of the nasal chamber is induced by the application of one-half drop of saturated solution of cocain applied to the region of the sphenopalatin ganglion, which almost invariably lies submucous just posterior to and immediately above the posterior tip of the middle turbinate. Trunk anesthesia is also used for the anterior ethmoidal nerve which enters in the anterior superior angle of the nose. Adrenalin solution 1-1000 is sprayed into the nasal cavity from three to five minutes before beginning the operation.

The cribriform cut is made with a knife devised by Sluder and described by him in text published in 1907. "It consists of a handle, a shaft, and a cutting end turned at a right angle to the shaft and sharpened so as to cut on the inside of the right angle."

In making the first cut the knife is placed under the anterior third of the middle turbinate as far back as the uncinate process and as high as the cribriform plate, with its cutting edges facing forward. It is then rotated somewhat inward and drawn forward and downward. This cut severs the anterior attachment of the middle turbinate and, at the same time, lays open the pre-frontal ethmoid cells and frees the inlet to the frontal sinus, which can be further enlarged by replacing the knife in the uppermost limits, cutting edge facing downward and forward and by a downward pull removing the uncinate process.

To further open the ethmoidal labyrinth, the knife is again introduced and carried along the cribriform plate, with the cutting edges pointing downward, to a distance of one cm. It is then rotated outward and slightly upward and again pulled downward and forward. The knife is reinserted, carried back one cm. further, and again pulled downward and forward, this move being repeated until the entire ethmoidal labyrinth has been fully opened antero-posteriorly and on a plane two mm. below the cribriform plate. The knife is then reinserted and carried, cutting edges downward, down through the ethmoidal labyrinth completely separating the inner wall of the labyrinth together with the middle and occasionally the superior turbinates. This mass is pushed outward and downward into the nose and a snare placed around it severs it from its attachment.

The sphenoid may now be opened by carrying the knife back along the cribriform plate, cutting edge down, to the upper posterior limit of the nose, where, by gentle pressure, it is forced through the face of the sphenoid and, with a downward and forward pull, an incision is made down to or through the floor. The knife is reintroduced into the opening made and is rotated outward to an angle of about 30 degrees when it is again pulled downward and forward. This cut usually embraces the post-ethmoidal nasal wall together with the sphenoidal face, which can then be removed with Knight's forceps or similar bone cutting forceps.

This operation is striking in that it makes intranasal surgery of the upper cells practically safe by the fact that all cuts are made downward and forward, away from danger. It is thorough and complete and may be adapted to any one or all of the upper sinuses. The knife is sharp and makes a clean cut, thus producing far less trauma than is possible with the use of a curette.

Surgery of the Maxillary Antrum.—This may be radical or conservative. Of the radical procedures the most popular and effective

are the Denker, the modified Denker, and the Caldwell-Luc. Radical procedures are scarcely ever required for the purpose of drainage alone, hence I shall describe only that which I consider the most rational and conservative for the relief of antrum empyema. This operation was first done by Sluder in 1906, although not reported until 1909, six months after Hirsch reported practically the same operation. The operation consists in first cutting the lower turbinate free from its attachment, back as far as the junction of the middle and posterior third. This is done with scissors. It is then pushed up into the middle meatus and the lateral wall of the lower meatus is removed by means of forceps especially constructed for this purpose by Sluder. The blades of the forceps separate. One is tipped with a sharp, lance-like point, the other is cup shaped with sharp edges. The pointed blade is forced through the antral wall at its lower anterior limit. The cup blade is then locked to it and the blades are closed. By a rocking motion part of the antral wall is bitten or fractured loose and removed. This opening can then be enlarged to any desired size and, by pushing the severed turbinate down into the lower meatus, the opening can be carried upward as high on the wall of the middle meatus as is desired.

The turbinate is then replaced and held in position by cotton tampons or stitches, the former usually sufficing.

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EPITHELIOMA OF THE GLANS PENIS

Report of Case

RAY C. LOUNSBERRY, M.D.

SPRINGFIELD, MO.

Primary epithelioma of the glans penis is not of frequent occurrence in Southwest Missouri. In fact my case is the only one reported since 1910. It is a known fact that cancer of the penis manifests itself in epitheliomatous form, having the same morphological and pathological characteristics of those found in other regions of the body. This condition is found in individuals who have redundant prepuces, associated with a congenital phimosis. It has been said that epitheliomata are rarely found among the Jews, because most of them abide by that ancient Mosaic custom of circumcision.

The disease in my case commenced in the sulcus glandis, posterior to the corona glandis and rapidly spread to the adjacent tissue manifesting itself in wart-like outgrowths, which were surrounded by ulcers. The infiltration

continued until all of the surrounding tissue was affected.

At first the patient noted a small papule in the sulcus glandis. Thinking it to be a soft chancre of Ducre it was treated locally by his family physician. The papule instead of responding to local treatment grew worse and worse. The pain was agonizing. He slept neither day nor night for weeks. At last upon the recommendation of a layman he came to my office. I noted that the inguinal lymphatic glands were swollen. Pain was elicited on pressure. A purulent, foul-smelling exudate was discharging from the area affected. The irritation from the discharge associated with the weight of the tumor mass (which was the size of an orange) produced the state of continuous priapism. He maintained that he had a continuous painful erection night and day for weeks.

As the tumor grew, becoming worse with each application of caustic or local antiseptic, his vitality was lowered until at the time of his arrival in my office he was a walking shadow of his former self, having lost forty-five pounds in six months' time. He had made the journey of two hundred miles unattended and was at the point of exhaustion upon his arrival in Springfield.

He was immediately sent to the hospital and put to bed. A complete history was taken and these facts noted: His father died at the age of fifty with an epithelioma of the lip, thus confirming the heredity theory of causation. Following the history a complete clinical and physical examination was taken with findings as enumerated below in the case report.

T. W. C., male, age 49, color white, weight 110 lbs., height, 5 feet 8 inches; nutrition, poor; came to me June 29th, 1920, complaining of a tumor-like mass on the glans penis, which had been treated by his family physician for over one year. He stated that it had its origin one year previous and had been growing progressively worse, notwithstanding local treatment, but like most cancer cases he waited, expecting improvement and none came, until all of the inguinal lymphatics were involved.

He was a farmer by occupation. He had never been operated upon. He had been married twenty years and had four children, all of whom were living and well. He had had all the diseases of living and well. He had all the diseases of childhood.

The patient at the time he discovered the first papule, which was the seat and starting point of the epithelioma, was seemingly in perfect health. He worked hard in the field every day. From the beginning he complained of an intense pain radiating from the tumor mass, which extended up the penis, into the inguinal region. He had noted a papule surrounded by an indurated mass upon corona sulcus. The patient at the discovery of the lesion was well nourished, while at the time of his entrance into my office was a walking skeleton.

Upon minimum physical examination, I found that

his head was practically negative with the exception of pyorrhea of the gums. His thorax was negative with the exception of a slight arrhythmia. Abdomen negative with the exception of swollen inguinal glands. The extremities were negative. Genitalia: The seat of his physical disability rested at this point.



Fig. 1. Original photograph of cancer mass at time of operation.

Upon close examination I discovered a typical epitheliomatous-like mass, indurated, infiltrated, with an obnoxious, ill-smelling discharge sloughing from it.

A section was taken from the tumor for pathological diagnosis. The report returned was epi-



Fig. 2. Section taken from Fig. 1 showing cancer cells.

thelioma. The clinical examination of the patient was made with the following results:

Urine: Amount in 24 hours 1200 c.c.; color, dark amber; odor, putrid; spec. gravity, 1032; reaction, alkali; albumin, 2 plus. Phosphates, positive. Sugar, negative. Acetone, negative. Diacetic ac., negative. Pus, positive, 3 plus. Blood, positive. Crystals,

positive. Casts, positive. Bile, negative. Phthalein test, 30 per cent. first fifteen minutes, 48 per cent. in one-half hour, 65 per cent. in one hour.

The blood examination: W. B. C. 8,000; R. B. C., 4,500,000. Differential, polymorphus 65 per cent. Small lymph 28, large lymph, 7 per cent. Coagulation time, 2 minutes. Blood, Wassermann negative. Cystoscopic examination could not be performed.

I have gone into detail on the history and physical examination because so many physicians fall down on diagnosis, simply through lack of time spent on the case. In all urological cases where efficient work is done, such histories and such clinical and physical examinations should be made. Many times important clues are discovered which unravel the tangle in the thread of diagnosis. Upon this history, physical examination and clinical diagnosis the conclusion drawn could be nothing else but epithelioma, especially since the pathologist confirmed the diagnosis.

The treatment in this case was radical since local means had proven fruitless. The caustics, cauteries, ointments, pastes, plasters and X-ray had proven of no value. Since the invasion had traveled into the inguinal region those glands had to be radically removed with the penis. A second degree amputation was performed. The amputation of the penis was made through the body of the organ. The skin around the organ was divided by a circular incision, and retracted. The corpora cavernosa were then cut through and the corpus spongiosum divided half an inch lower down. Bleeding was then stopped by ligating the cut vessels. Five ligatures are usually required, one for the artery to the corpus cavernosum on either side, one for each dorsal artery, and one for the septal artery. The sheaths of the corpora cavernosa are then overstitched to the sheath surrounding the corpora urethra; thus the reconstruction of a new external orifice to the urethra was performed. The skin was then stitched to the sheath which surrounds the corpora urethra and the membrane of the urethra.

Following the amputation of the penis a radical, complete removal of all the inguinal glands was performed, the wound being closed in the usual way. A drainage tube was placed in the urethra by adhesive strips as prescribed and used by Bransford Lewis. A chlorozone wet dressing was retained upon the penis until the wound healed. A dry dressing was placed on the abdominal incisions. The bladder was irrigated with one and a half per cent. sol. of mercurochrome. General systemic treatment was instituted also. At the end of two weeks the wound was healing nicely. The patient was sitting up. No complications had been recorded. All the symptoms had disappeared including the agonizing pain which he had when attempting to urinate. He left the hospital in three weeks feeling like a new man.

Patient's statement one year later:

"One year has passed since the operation, with this good news: I am well and happy, and have gained forty pounds. My appetite is good, and I work from eight to twelve hours a day in the field."

607 Woodruff Bldg.

NONSURGICAL DRAINAGE OF THE BILIARY TRACT.—In ailments which are of recent inception or in which pathologic damage precludes hope of successful surgery, by preventing bile stasis, by attempting to eradicate infection and by striving to improve hepatic function, Frank Smithies, Clyde F. Karshner and Richard Bartlett Oleson, Chicago (*Journal A. M. A.*, Dec. 24, 1921), assert this procedure is of service.

BACTERIOLOGY AND ITS INFLUENCE ON MEDICINE AND SURGERY*

President's Address
at meeting of Southeast Missouri Medical Association

T. R. FRAZER, M.D.

COMMERCE, MO.

It has been well said that bacteriology demonstrates the old adage, "The child is parent to the man" in so much as this science, once considered an offspring of the healing art, is now conceded to be the foundation on which almost the entire superstructure of modern medicine is erected, and especially is this true of the surgical infection as well as the infectious diseases.

The perpetuation of life is a continual sacrifice of one existence for another, a preying of one life upon another life. Not only is this true of the ferocious beast that crouches in his jungle lair to prey upon the smaller fauna, but applies with equal force to the daintiest epicure who dines at Delmonico's.

As a rule, the higher animals feed upon the lower, and animal life upon plant life. But we know there are some exceptions to this general rule. For instance, we know that there is a perennial plant indigenous to the swampy sections of the southern states of North America known as the Flytrap, botanically termed the *Dionea Muscupula*, a vegetable, which has the property of secreting a honeylike, tenacious fluid which by its aroma entices the insectivora of the neighborhood. The insect lights upon the chalice of the plant, becomes entangled in this tenacious secretion, the leaf of the plant folds over, entraps, digests and assimilates the insect. Here we have an example of a vegetable feeding upon an animal.

We have in recent years accommodated ourselves to the important discovery that there are certain very minute, microscopic, unicellular forms of plant life which have the faculty, under favorable conditions, of feeding and developing on the more highly organized living tissues of man and animals. When these vegetables, these bacteria, gain entrance into the tissues of the man or the brute; when they begin to feed and multiply, they produce poisons or toxins that so influence the system of their host that there results the symptoms which we recognize as disease; such as fever, pain, swelling, delirium, heart weakness, etc.

Bacteria then are plants and not animals, contrary to the belief of a great many people who have not given this subject much thought, and are very often erroneously spoken of as bugs. There is something in the word bug that conveys to the mind of the average in-

*Read at the meeting of the Southeast Missouri Medical Association, October, 1921.

dividual a thing that is noxious to his comfort and inimical to his welfare, hence the belief among some that they are insects of microscopic dimensions.

Bacteria differ from the higher forms of plant life in that they have no chlorophyl in their makeup. Chlorophyl, as you all know, is the green coloring matter of plants; it is that substance which in the presence of sunshine and moisture has the faculty of abstracting certain elements out of the atmosphere for its development. For instance, it has the property of disintegrating that chemical compound known as carbon dioxide, carbon and oxygen, the carbon of which it appropriates for its own growth, liberating the oxygen to be again used for purposes of respiration and combustion.

Bacteria having no chlorophyl in their composition must depend for their subsistence upon organized matter, living and lifeless, and it is this characteristic of selecting its food supply that distinguishes two classes of bacteria. On the one hand we have the saprophytic types of bacteria and on the other hand the parasitic or disease-producing germs.

The saprophytic bacteria can only live and grow upon lifeless matter, while the parasitic forms feed not only on lifeless material but upon live tissue as well, and in fact they often show a marked predilection for the living. Some of our most virulent and poisonous germs are, with a great deal of difficulty, grown outside of the living host. The saprophytic forms of bacteria, which greatly predominate in numbers and varieties, are not only harmless but are very beneficial and are absolutely essential to the economy of creation, and were it not for their persistent activities in bringing about the conditions known to us as fermentation, decomposition and decay, this world would soon be encumbered with the dead and inert and useless carcasses of all things that have grown upon this earth since time began and all the elements of creation would be so bound up that life on this sphere would have ceased many years ago.

This bring us face to face with that chemical axiom that we can neither create nor destroy matter. It is safe to say that not one elemental atom has been added to creation since that eventful morn when our great ancestors Adam and Eve stepped forth into the Garden of Eden to enjoy the primordial perfections of an earthly Paradise. These bacteria are the little magicians that unfetter these Promethean-like elements from their enforced associations, allowing them to float free into the air or crumble into the earth until they are again combined under the synthesis of God's hand into new creatures and new objects.

The pathogenic bacteria on the other hand are not essential to the economy of creation. They are the nemesis of every man, woman and child that treads this vale of tears. They remind us that life is hazardous at best and that the finger of the destroying angel is at every latchstring; his foot tracks are in every path, blossom and briar, fruit and thorn; he gathers them all; he knows no difference between king and peasant; the scepter of one is no more to him than the plow handles of the other; he touches his dreamless slumber to the eyelids of both and they fall asleep; the one by his throne, the other by his furrow.

It is this form of bacteria that we as physicians are interested in. That the laity have a more or less passing interest in. It is a practical knowledge of these bacteria that has enabled medicine to evolve from the chaotic state in which it existed forty or fifty years ago into the light of the exact science that it is today. By this knowledge we are able to understand just what causes these diseases and very often we are able to prevent them. We have a rational foundation for intelligently treating these diseases. It is a practical knowledge of this science, how to destroy, how to eliminate these bacteria, that has enabled the surgeon of today to dip his hands into the most vital precincts of the human body; it has enabled him to invade with impunity the sanctum sanctorum of life itself, but without this knowledge the most beautifully performed piece of surgery might result in the most doleful tragedy. One drop of pus in a bone plating operation or Albee's operation for the correction of a crooked spine would render these operations a complete failure.

Our preceptors of fifty or sixty years ago did not understand the principles of infection as we do today; they looked upon untoward results following their operations and surgical procedures as almost inevitable; they spoke of union by first intention following their operative incisions as though they were greatly desired but not likely to occur. Suppuration to them was a very common event and if the system of the patient were not too profoundly influenced, they spoke of it as laudable pus, meaning blameless pus. The surgeon of today who encounters these results knows there has been something wrong in his aseptic technique.

Antiseptics and disinfectants were employed long before the nature of bacteria and infection was understood and found its expression in the hot poker of the Indian Medicine Man to indolent ulcers and superficial ulcerations, thereby converting them into aseptic, rapidly healing burns, and the saturation of all cuts,

scratches and abrasions with turpentine was another antiseptic procedure empirically applied, and the universal use of tincture of iodine as a first aid in injuries is a refinement of the old turpentine bottle of our grandfathers.

The evolution of bacteriology has been very tedious and slow since the discovery of bacterial life in the seventeenth century by Anthony von Leeuwenhoek, a lens grinder of Vienna, who, having perfected a microscope more powerful than any that had hitherto been devised, was able to observe these little animalcules, as he called them, in fermenting and decomposing matter and to which he ascribed the processes of fermentation, decomposition and decay, only to be hooted and jeered at by his confreres and contemporaries.

During the intervening centuries little progress was made in this science until the latter half of the last century when Louis Pasteur, an eminent French investigator, placed it upon a foundation from which its evolution has been very fruitful and rapid until today it would be impossible, in a brief discourse of this kind to enumerate the many golden gifts it has dropped into the laps of medicine and surgery. Suffice to mention only a few with which you are most familiar, such as diphtheria antitoxin, antitetanic serum, the production of a reliable vaccine against typhoid fever and many others equally worthy of mention. It is not too Utopian to predict that in the near future, within the next generation or two, we may expect a specific remedy for every infectious disease, and when that day dawns it will mean the Eureka of modern medicine.

PUERPERAL MASTITIS.—F. A. Dorman and J. K. Mossman, New York (*Journal A. M. A.*, Aug. 13, 1921), urge: (1) more effort toward the prevention of contamination in the first and second weeks of the puerperium; (2) general training of staff and nursing force, that the earliest recognition of infected breasts may be achieved; (3) prompt treatment of the infection by some rational method which will stand the test of figures showing a minimum of suppurative termination. Among 2,000 patients there were fifty-seven cases diagnosed as mastitis, an incidence of 2.8 per cent. Twenty-two and seventy-five one hundredths per cent. of infantile complications were recorded in the histories of these mastitis cases, as against 10 per cent. as a general nursery record. Of these, eight were conjunctivitis cases; three pustular, and two coryzas. The onset of infection showed that from the seventh to the twelfth day was the commonest time of incidence. The eighth day is the one peculiarly liable to show a beginning mastitis. The frequency of the occurrence of breast abscesses is variously given by different authorities. The authors' statistics showed 0.4 per cent.; suppurative in 14 per cent. Appreciable lesions of the nipples are not the only cause of infection, for breast abscess occurs not infrequently with the nipple apparently intact, while many patients with severely damaged nipples show no breast

inflammatory reaction. Their technic in the case of damaged nipples is to use a constant dressing of either tincture of benzoin or bismuth and castor oil, from 1 dram to 1 ounce, or the lead nipple shield. The last is the most valuable of all. With a damaged nipple, all nursing should be through a glass nipple shield. In cases of bleeding, nursing is temporarily discontinued. In the prevention of contact infection, the nipples are, when not in use, covered by a sterile compress or pad of gauze, 4 inches square, held in place by adhesive strips. This does away with the necessity of a binder to protect the nipple, besides providing a sterile dressing which remains in place unless removed by the nurse or physician. Further prophylaxis involves the rapid clearing up of all infantile infections, and in case of one-sided mastitis, the prohibition of consecutive nursing from the infected side to the normal one. In the first 1,000 cases, in which the particular protective dressing described above was not employed, the mastitis incidence was thirty-six cases, with five abscesses. In the last 1,000 cases, coincident with the adoption of this dressing, the mastitis incidence was twenty-one, with three abscesses. In the treatment of the mastitis, certain therapeutic measures seem to have almost universal acceptance. These are the use of cathartics and the employment of a binder for pressure and support. The limitation of fluid in the diet is generally accepted also. An overwhelming majority use ice locally until the presence of suppuration is suspected. The moot points are those which involve the emptying of the breasts by massage, pumping or nursing. When the presence of suppuration is suspected, a change from cold to heat gives comfort and hastens localization. All breast manipulation should cease, including nursing. Free incisions with counter drainage by rubber tubes and irrigation with surgical solution of chlorinated soda will hasten recovery.

PREVENTION OF ACUTE ARSPHENAMIN REACTION BY ANTIANAPHYLAXIS AND ATROPIN.—In the group of cases reported by George J. Busman, Rochester, Minn. (*Journal A. M. A.*, May 7, 1921), repeated nitritoid crises, associated with repeated gastro-intestinal reaction, persisted regardless of any controllable factor in the technic. Repeated uncontrollable acute reactions are interpreted as personal idiosyncrasies of the patients to the drug. The observations of Stokes on the value of atropin and of induced anti-anaphylaxis (Besredka technic) in the control of a persistent tendency to acute nitritoid crises is confirmed. It has been further found that a tendency to repeated late gastro-intestinal reaction can also be controlled in a large number of cases by either method alone, or by a combination of the two methods. Atropin is sometimes effective in doses less than 1/50 grain. It may fail entirely to effect reaction even in doses of 1/50 grain. A combination of the use of atropin and the induction of antianaphylaxis by dividing the dose of arsphenamin is more effective than either method alone. A combination of the two methods may make possible the continuance of arsphenamin treatment in patients in whom repeated severe reaction would otherwise force its abandonment.

DERMATOMYOSITIS, WITH REPORT OF TWO CASES.—Dermatomyositis is defined by Walter R. Steiner, Hartford, Conn. (*Journal A. M. A.*, Jan. 28, 1922), as an acute, subacute or chronic disease of unknown origin, characterized by a gradual onset, with vague and indefinite prodromes, followed by edema, dermatitis and a multiple muscle inflammation.

THE JOURNAL

OF THE

Missouri State Medical Association

APRIL, 1922.

EDITORIALS

THE SIXTY-FIFTH ANNUAL MEETING

The 1922 meeting of the Association will be held at Jefferson City, Tuesday, Wednesday and Thursday, May 2, 3, and 4, the date and place of meeting having been changed as announced in our last issue. All meetings will be held in the Capitol. The general meetings will be held in the House of Representatives and the House of Delegates will meet in the Senate chamber. The Secretaries will hold their meeting in the lounging room of the House of Representatives.

The preliminary program will be found on another page in this issue. It contains many papers that are of very great interest to the members in their practice, and two papers bearing on questions that have been under considerable discussion for some time, namely, the re-organization of the state hospitals and the re-establishment of the four years' course in medicine at the State University. Dr. G. P. Ard, State Health Supervisor, will give us a full statement of the plan for making the state hospitals more serviceable to the people and with the removal of politics from influencing the appointment of superintendents and employees, show us how he expects these institutions to contribute something toward the scientific development of treating the insane and feeble-minded.

Dr. Guy L. Noyes, Dean of the Medical School of the State University, will outline the plans that have been formulated thus far to restore the complete medical course at the University and the construction of a state hospital where it is expected clinical facilities will be available for teaching the clinical courses.

HIRSCHSPRUNG'S DISEASE

The exhaustive and valuable study of a case of Hirschsprung's disease by Rassieur reported in this issue* recalls the strong controversy which has been filling many columns of our medical literature in the last twenty years. What is Hirschsprung's disease? The usual clinical concept was that it is a congenital mal-

formation (megacolon), although only a small proportion of the cases present symptoms and signs of the disease immediately after birth.

In general, the term Hirschsprung's disease is applied to that pathological condition characterized by a marked dilatation of a part or the whole of the colon, but in which no stricture or stenosis is discovered when the large intestine is examined post-mortem.

It had been assumed that a defect existed in the intestinal coats which permitted this extreme dilatation as a result of intestinal fermentation. Rassieur's studies, however, corroborate the opinion, which is rapidly gaining ground, that the changes in the intestinal wall are secondary processes due to intestinal stasis and infection and cannot explain the origin of the dilated colon.

In the exhaustive review of this subject by Kleinschmidt (*Ergeb. d. Inn. Med.*, Vol. 9, 1912), many facts are cited which do not confirm the old theory that the disease is a congenital defect in the intestinal coats. Congenital dilatation of the colon is exceedingly rare; the disease originates after birth in the majority of cases. The clinical features suggest a partial or intermittent obstruction and the pathological changes found in the colon are those resulting from chronic intestinal stasis.

But no obstruction is discovered on opening the bowel post-mortem! It has been suggested by Kleinschmidt and others that an obstruction might be found if the intestines were examined in situ. The topographical relationship of the different parts of the large intestine must be carefully studied. Rassieur did not neglect this. He found an angulation, a kink, at the junction of the descending colon and the sigmoid. To this he assigns the cause of the partial obstruction and confirms the view expressed by Kleinschmidt, that a kinking of the bowel, usually at the junction of the sigmoid and rectum, or the descending colon and sigmoid, is the principal etiologic factor in the disease. Recently Josselin and Plantenga (*Jahrb. f. Kinderh.*, Dec., 1921) came to a similar conclusion, but they insist that the primary fold or kink occurs at the junction of the sigmoid and rectum; since the latter is immovable, it favors an obstruction from an acute angulation. It is conceded, however, that other causes, e. g., large valves in the rectum, torsion of the bowel, may act in a similar causative way and produce a partial obstruction and, consequently, a megacolon.

Dr. Rassieur's conclusion, that the other kinks in the bowel are but the natural sequelae of the primary kink and dilatation of the bowel, is very interesting and as far as we know an original observation. This study of

*Page 139.

one case is exceedingly important and his conclusions unassailable.

In this connection, it might be well to call attention to another group, less pronounced it is true, of dilated intestines, which are described in the pediatric literature under the terms, celiac disease, chronic intestinal indigestion, Herter's infantilism, etc., the origin of which is still in dispute but which in many clinical features resemble the Hirschsprung syndrome. May not the intestinal symptoms and pathological changes in these cases also be dependent on a partial colonic obstruction caused by a kink in the bowel? We are inclined to think that a similar origin will be found in these cases.

NATIONAL HOSPITAL DAY

On May 12 National Hospital Day will be celebrated for the second time. This particular date was originally chosen as it is the birthday of Florence Nightingale, best known for her work for nursing but who contributed perhaps as much or more to the advancement of efficiency in all hospital work.

Last year, with but a very short time for organization and preparation, more than 1,500 hospitals participated in the observance of this day. Every state in the Union except one and four Canadian provinces took part; the number of visitors to individual hospitals reached the high water mark of 4,000 in two cases.

This year it is confidently expected that at least 4,000 hospitals will have special programs and, as many of the hospitals of England have shown interest in this movement, it seems likely that observance of Hospital Day will spread all over the world.

What is National Hospital Day? Possibly the best way to summarize it would be in the phrase, "Popularize the Hospital;" that is, acquaint the public with the various forms of service that the hospital has to offer. The most universal way of doing this has been by keeping open house during part of Hospital Day and inviting the public to visit the hospital and the school of nursing. Other methods of observance have been by holding nurses' graduations on this day, by parades, by pageants, by baby shows, by opening new hospitals, by public meetings and by talks on hospitals and hospital service.

What are the benefits that accrue from the observance of this day? It gives the public an opportunity to see that hospitals are places where patients get well under the best and happiest of conditions instead of being, as the old idea was, simply places in which peo-

ple go to die. Seeing the work that is done in hospitals will make the public more willing to go to the hospital when occasion arises and to contribute when there is need of funds. No one is willing to contribute to a cause he knows nothing about. It will awaken interest in nursing because prospective applicants will see the conditions under which nurses work, the conditions in which they live, and that they are educated for a life of greater interest and usefulness, whether they continue as nurses in the many fields now open to them, as private duty, institutional work, and public health work, or re-enter private life in homes of their own. This movement has had the approval of President Harding, Surgeon General Cummings of the U. S. Public Health Service, the Governor of Missouri, and the governors of many other states and provinces, and it should have the whole-hearted co-operation of the entire medical profession of Missouri.

The influence which the medical profession can and should bring to bear on the clergy, newspapers, public officials and the laity in general will go far to "popularize the hospital."

THE BUREAU FOR THE PREVENTION OF JUVENILE DELINQUENCY

St. Louis is fortunate in being the first of a group of cities in which the utility of a clinic in connection with the Juvenile Court will be demonstrated.

The Commonwealth Fund has made the National Committee for Mental Hygiene its agent for the guidance of this work. Dr. V. V. Anderson, of the National Committee, formerly in charge of its Bureau for Mental Defectives, is in charge of the Bureau for the Prevention of Juvenile Delinquency and will come to St. Louis with the group that is to serve there and remain until everything is running smoothly.

It is well to call attention to certain phases of this work which may not be quite clear to all of us. Although the clinic is called "psychiatric" only a small percentage of insanity is found. On psychological examination very many more, perhaps ten to thirty per cent., are found to be feeble-minded. This leaves a large group in which neither mental disease nor mental defect explains the delinquency and it is this group that will receive most intensive study. The examining group is engaged in research in human behavior.

We already know a good deal about how to provide for the mentally sick or enfeebled. What we need to know is why children go wrong when native capacity is up to or above average levels and when no disease process has been at work.

Dr. Anderson will guide the investigations to the end that every angle of the subject will be illuminated—heredity, home life, habits, street associations, school life, play, work, physical factors—all will be weighed and evaluated. Such intensive study should bring useful results.

COMMISSION TO INVESTIGATE THE CULTS RECOMMENDED BY DR. STRICKLER

Declaring that the medical profession deserves much of the condemnation it has received because of our intolerance of the cults in medicine, Dr. David R. Strickler, president of the Federation of State Medical Boards of the United States, in his presidential address at the Congress on Medical Education and Licensure, at Chicago, March 8, recommended that a commission of scientists be created to ascertain the facts relative to any method of treatment in selected cases, the advocates of the method of treatment to be permitted to select the class of cases to be treated. Thus, the chiropractors would be invited to demonstrate before this commission their system of healing on cases selected by the chiropractors. The commission would then "make a thorough clinical study of the cases, including laboratory, X-ray and pathological findings," and a record made of the preliminary findings and records of the advocates of the chiropractic method. Careful notes throughout the treatment should be made by the commission and a record of the end results would complete the investigation of a given case. "If the theory be capable of demonstration through animal research," continues Dr. Strickler, "the commission should with a fair and open mind enter this field to the end that the truth may prevail. The success of the plan presupposes a commission honest in purpose, judicial in temperament, of scientific attainments and with sufficient financial support to make a complete study of problems presented."

Similarly osteopathic treatment, Christian Science healing and the other less well-known cults claiming to have peculiar gifts or theories for the cure of the sick, would likewise be studied.

Dr. Strickler urges the profession to rise to its opportunity and said: "Never in the history of medicine has there been such an easy way open to prove the value and limitation of varying methods of healing as at present with our great institutions of research and our rapidly increasing numbers of men trained in scientific methods of observation."

The proposition is appealing and would probably develop into a thoroughly effective means

of spreading knowledge and enlightenment among the people concerning the fallacy of these systems of healing. Furthermore, if there did happen to be some basic element of truth underlying the teachings of these cults it is the duty of the profession to assimilate that grain of knowledge for the benefit of humanity.

No man has a monopoly of knowledge, not even in his chosen field of activity. It is freely acknowledged everywhere that the medical profession does possess a broader knowledge of disease, its cure and prevention, than any of the cults or followers of drugless systems of healing, but the people are not willing to abandon the hope of relief through a well-advertised short-cut to health merely because the higher representatives of the medical system of healing condemn it. Perhaps if we can say that the claims of these cultists had been investigated by an unprejudiced body of men seeking only the truth in order that we might profit thereby and had found the system without merit, then the people might believe us.

Dr. Geo. Dock, of St. Louis, Professor of Medicine Washington University Medical School has studied the chiropractic problem and published his comments.* His findings, however, do not reach the mass of people who ought to be most interested in the facts presented, because there is no method established through which we might present the matter to the people. On this point Dr. Strickler suggests that a central body should be established through which the investigations of these limited systems of healing should be spread through the press and otherwise which would carry the facts to the people and be educative of the achievements of medicine as well, thus giving proper publicity to the progress medical science is making and counteracting the mis-statements and misrepresentations of the opponents of scientific medicine. In this way the truth concerning the faddists, the opponents of vaccination and vivisection, as well as facts on health protecting measures, would be made plain to the people.

AN UNFIT HOME FOR CHILDREN CLOSED

The State Board of Charities and Corrections closed a home for children in Kansas City recently because the home was found unfit for the care and control of children. It is said the sanitary conditions of the home were abominable.

This is the first instance of closing a place

*Dock, George: Physicians and Healers, South. Med. Jour., 1:1 (Jan. 1, 1918). Jour. Am. Med. Assn., Jan. 7, 1922.

where homeless children are cared for and was done under the authority of an act passed at the last session of the legislature, making the Board of Charities and Corrections responsible for the proper conduct of such places. The law requires the board to license, regulate and supervise boarding houses for infants under three years of age, boarding houses for children over three, and maternity hospitals. This is a salutary law and will give assurance that such homes and hospitals hitherto operated by irresponsible persons shall be conducted in accordance with present-day ideas of bringing up children so that they will become good citizens.

All such institutions will be required to obtain a license from the board and submit to inspection and supervision. The license must be renewed annually and may be revoked by the board. Homes for infants and children conducted by well-known religious organizations are exempt from the provisions of the law.

NEWS NOTES

DR. THOMAS D. MILLER, of Aurora, is recovering from a severe illness.

DR. H. L. MEADOR, of Van Buren, has recovered from an operation for appendicitis.

THE American Association for the Study of the Feeble-Minded will meet at St. Louis, May 18-19-20.

DR. A. B. CLARK has been appointed as Registrar of Vital Statistics for Joplin. Dr. J. A. Chenoweth has held this position for the past five years.

E. S. JIMMERSON, who shot and killed Dr. L. H. Brannon, of Hayti, was found guilty of murder in the first degree and sentenced to life imprisonment.

DR. E. C. ERNST, of St. Louis, was elected president of the American Roentgen Ray Society, Central Section, at the meeting held in Chicago, February 22.

ST. JOHN'S HOSPITAL, of Joplin, has announced that Dr. A. L. Korn has been employed as pathologist. Dr. Korn will give part of his time to the hospital.

DR. W. C. GAYLER, of St. Louis, who has been confined to his home and incapacitated for almost a year from a severe attack of neu-

ritis, has recovered and has resumed his practice.

DR. HUBERT WORK, President of the American Medical Association, has been appointed Postmaster-General, succeeding Mr. Will H. Hays. Doctor Work has been first assistant postmaster during the present administration.

DR. M. P. RAVENEL, of Columbia, has been appointed one of a committee representing the American Public Health Association to cooperate with the organizers and directors of the proposed Gorgas Memorial Institute to be located in Panama.

DR. M. P. RAVENEL, of Columbia, Professor of Medicine at the State University, has been appointed chief associate examiner in public health for the National Board of Medical Examiners and member of the council for the district of St. Louis.

THE American Proctologic Society will hold its next annual meeting at St. Louis, May 22-23, with meeting place and headquarters at Hotel Claridge. Members and Fellows who are interested in proctologic work are invited to attend the sessions.

THE death of a physician practicing at Barnhart, Jefferson County, Missouri, leaves that community without a physician. Barnhart is on the Frisco Railroad, about thirty miles south of St. Louis. Any physician interested in this location will learn more about the conditions by writing to Mrs. C. L. Barnhart, Barnhart, Mo.

THE St. Louis Clinics are arranging special clinical features for Thursday, Friday, Saturday and Monday, May 18, 19, 20 and 22. This will give members outside of St. Louis a splendid opportunity to view a large amount of clinical work during the four days just preceding the convention of the American Medical Association.

THE members of the St. Louis Medical Society are seriously agitating a movement for erecting a new building. Opinions from members have been published in their bulletin from time to time indicating that there is a very strong sentiment in favor of some plan to provide better facilities for the meetings of the Society and for the library.

THE St. Louis Medical Society has established a Speaker's Bureau through which it is expected that lay organizations desiring phy-

sicians to lecture on public health questions may have a member of the Society assigned to them by the Bureau, thus placing the responsibility for the publicity upon the St. Louis Medical Society.

DR. W. L. GIST, Superintendent of the Kansas City General Hospital, has inaugurated a system of part pay care for patients able to pay something for hospital care but not competent to pay the charges at a private hospital. A social service worker has been employed to investigate the financial condition of those admitted to the hospital on the part pay plan.

THE course of lectures in ocular pathology given by Professor Ernst Fuchs, of Vienna, under the auspices of the Ophthalmic Section of the St. Louis Medical Society during February was attended by sixty-one ophthalmologists from St. Louis and thirty-three from other cities. The St. Louis ophthalmologists arranged special clinics in ophthalmology and otolaryngology for the benefit of the visiting physicians.

THE physicians of Kansas City have arranged for special sleepers for the A. M. A. Convention at St. Louis to be attached to the regular Alton-Burlington trains leaving Kansas City at 11:55 p. m. on Saturday, Sunday and Monday nights, May 20, 21, 22. Physicians in surrounding towns desiring reservation on any of these trains should write to the secretary of Jackson County Medical Society, General Hospital, Kansas City.

THE dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22 and 23, 1922. Part I and II, September 25, 26, 27, 28 and 29, 1922. Applications for the June examination should be in the Secretary's office not later than May 15, and for the September examination not later than June 1. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

A PRIZE of \$10 has been offered to the member of the Jackson County Medical Society who supplies the best answer to the questions:

Why should every ethical physician in Jackson County be a member of the Jackson County Medical Society?

Why am I—an ethical physician—a member of the Jackson County Medical Society?

It is intended that the answers shall be utilized for propaganda to attract new members to the Jackson County Medical Society.

ST. LOUIS MEDICAL SOCIETY is making special efforts to induce their members to become Fellows of the American Medical Association. The movement is a very appropriate one, especially at this time as the American Medical Association meets in St. Louis next May and Missouri Fellows will find it very convenient to attend the sessions. We suggest to the other county societies that they urge their members to become Fellows of the American Medical Association. Only Fellows are privileged to register at the sessions and take part in the proceedings. Being a subscriber to the *Journal of the American Medical Association* does not confer Fellowship, but the cost of Fellowship and receiving the *Journal* is no more than the cost of subscription to the *Journal*; hence, those who are now only subscribers should make application for Fellowship. Blank applications for Fellowship will be sent on request.

FROM the *Bulletin* of the Jackson County Medical Society we quote six reasons advanced for joining the Society. They apply with equal force to membership in other county societies. The reasons follow:

1. Membership is the first step in becoming a member of the Missouri State Medical Association and the American Medical Association.

2. Regular weekly scientific meetings provide a means of keeping pace with medical progress.

3. The library of our Society, containing several thousand volumes, receives over 200 current medical journals of all nations, and is open daily to every member, with an experienced librarian in charge.

4. Ethical medicine is honest practice. Membership fortifies our professional standing in the community.

5. Open discussion at the weekly meetings affords opportunity to every member to test his ideas before his colleagues and to promote his individual interests as a specialist.

6. Organized medicine has the health interests of a community at heart. It is our duty to support and promote every progressive health and sanitary problem possible.

DR. F. G. NIFONG was elected chief of the visiting staff of the Boone County Hospital, Dr. J. E. Thornton, vice chairman of staff, and Dr. J. E. Jordan, secretary of staff, by the Boone County Medical Society recently to care for clinical patients in the hospital.

The rest of the staff will be composed of members of the Society who have volunteered their services. It was decided that each of these members should serve for a period of three months with an alternate and a second alternate.

The services to be rendered in the Boone County Hospital were classified under the following heads: Nervous and mental diseases, general surgery, eye, ear, nose and throat diseases, genital-urinary diseases, obstetrics, general medicine, neurology, pediatrics, roentgenology, laboratory service, voluntary inspection of public schools and voluntary lectures to the public on health and medicine. Each doctor is to be limited to any two of these services he may select.

A tentative staff was selected by Dr. Nifong from the list of those who had volunteered their services. At the close of the staff meeting, the Boone County Medical Society authorized Doctor Noyes, president of the Society, to appoint a committee to report on the amount needed for fitting up a room at the Boone County Hospital where the meetings of the Society will be held.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

G. W. Carnrick Co.: Amylzyme Capsules.
Merck and Co.: Bromipin 10 per cent.; Iodipin 10 per cent. Tablets.

Powers-Weightman-Rosengarten Co.: Theobromine-P. W. R.

Schering and Glatz: Xeroform S. and G.

E. R. Squibb and Sons: Diphtheria Immunity Test (Schick Test)-Squibb; Diphtheria Toxin-Antitoxin Mixture-Squibb.

Persson Laboratories: Bacillus Coli Antigen (No. 50)-Persson; Furunculosis Vaccine Mixed (No. 37)-Persson; Gonococcus Antigen (No. 47)-Persson; Staphylococcus Aureus Antigen (No. 49)-Persson; Streptococcus Antigen (No. 48)-Persson; Pneumonia Vaccine (No. 36)-Persson.

Powers-Weightman-Rosengarten Co.: Novarsenobenzol-Billon.

G. H. Sherman: Whooping Cough Vaccine-Sherman; Mixed Typhoid Vaccine-Sherman; Acne Staphylococcus Vaccine-Sherman.

Winthrop Chemical Co.: Alypin.

The Intra Products Co.: Sterile Suspension Mercury Salicylate in Cacao Butter; Sterile Suspension Mercury Salicylate in Olive Oil.

Meadows Oil and Chemical Corp.: Ammonium Ichthyolate-Meadows.

OBITUARY

YOUNG H. BOND, M.D.

The death of Dr. Young H. Bond, of St. Louis, on February 5, 1922, after a short illness, came as a distinct shock especially to his former associates in medical society and college work. Doctor Bond was president of the St. Louis Medical Society in 1888, Dean of the Marion-Sims Medical College from its beginning until it was purchased and taken over as the Medical Department of the St. Louis University.

Doctor Bond was known to his associates as a forceful leader with good judgment and a will to carry through to success any plan upon which he had decided. His determination and diplomacy frequently brought success when others, less sturdy, would have failed. He came to St. Louis as a poor boy and by his own efforts a large and desirable practice was developed. His leadership as dean of the Marion Sims Medical College also had a very beneficial effect on medical education in this country. He did the unusual thing in retiring from a good practice while still active but after having gained a reasonable competence for himself and family.—*Bulletin*, St. Louis Medical Society.

FRANCIS E. HINCH, M.D.

Dr. F. E. Hinch, of Ste. Genevieve, a graduate of the St. Louis Medical College (now Washington University School of Medicine), died in a hospital at St. Louis, January 17, aged 65 years. Doctor Hinch was one of the most prominent physicians in Southeast Missouri and a leader in many movements that engaged the attention of the medical profession in that section of the state.

He began practice at Collinsville, Illinois, where he lived for a year and then for a short time practiced in Washington County, Missouri. He then moved to Doe Run where he lived about ten years and during that time was surgeon for the Doe Run Lead Company. From there he moved to Gallup, New Mexico, where he remained for five years, returning to Missouri at the end of that time and settling in Ste. Genevieve. For a number of years he was president of the Ste. Genevieve County Medical Society to which he gave his loyal attention at all times. He was a Fellow of the American Medical Association, local surgeon for the Frisco Railway, and county physician for Ste. Genevieve County.

WILLIAM CARSON, M.D.

Dr. William Carson, of Shelbyville, one of the oldest practitioners in Shelby County, died

at his home, February 10, aged 76 years. He was a graduate of the St. Louis Medical College, 1868 (now Washington University School of Medicine), and practiced in Shelby County during his entire professional career. He was a man of splendid professional attainments and a leader in his county in movements looking to the improvement of health conditions of the community, and during his long life had endeared himself to a large number of friends and patients. He was a member of the county and state medical societies

OTTO A. WALL, M.D.

Dr. Otto A. Wall, of St. Louis, well known in both the professions of medicine and pharmacy, died at his home, February 13, aged 76 years. Through his death the medical and pharmaceutical professions have lost a valuable member. Doctor Wall had been very active as a teacher and research worker in both professions and had written numerous valuable monographs and books, among them being several standard text-books on pharmacy, and a book of wide repute regarding sex matters

JAMES P. WRIGHT, M.D.

Dr. James P. Wright, of Springfield, a graduate of the Medical Department of the University at Louisville, Ky., 1874, died of paralysis at a hospital in Springfield, February 14, aged 78 years. He practiced medicine in Springfield for twenty-eight years and was a member of Greene County Medical Society for a long time, but during the last few years did not keep up his active affiliation with the Society. A son, Dr. Walter E. Wright, is a practitioner at Tulsa, Okla.

JOHN ISBELL, M.D.

Dr. John Isbell, of Washington, the oldest practitioner of medicine in Franklin County and one of the most highly esteemed members of the profession in the state, died at his home, February 10, aged 78 years. Doctor Isbell graduated from the University of Virginia Medical School in 1867, and for some time after coming to Missouri he practiced in Osage County and later at Kansas City where he served as demonstrator of anatomy in the Kansas City Medical College during part of the time he lived in Kansas City. In 1875 he moved to Washington. Throughout his entire life Doctor Isbell was an inspiration to others through his kindly and generous nature, his gentle, helpful attitude toward his patients and his sympathy and assistance to his fellow practitioners. His death is a great

loss to the community in which he lived and to the medical profession of the state whose precepts and principles he followed at all times. He was one of the vice presidents of the State Medical Association in 1918-19 and served his county medical society in many official capacities.

CORRESPONDENCE

HOMEcoming MEETING OF ARKANSAS MEDICAL SOCIETY

Little Rock, March 1, 1922.

To the Editor:

The motif of our coming annual session to be held in Little Rock, May 17-19 next, is to be "the homecoming meeting," and we are very desirous of informing our old-time doctors from Arkansas, now practicing in other states, and stressing the fact that we shall expect them to be with us at the time indicated. This will be especially applicable to those desiring to attend the meeting of the American Medical Association, at St. Louis, as they can stop off with us, renew old acquaintances and resume their journey.

We shall appreciate it very much if you will carry a suitable news item in your JOURNAL, setting forth our good intentions that those in your state may be reminded of the invitation extended to them. This may seem unique, but in the ever changing present the unexpected happens daily. Therefore we are relying upon the co-operation and active assistance of our friends in putting this meeting over.

WM. R. BATHURST.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION

St. Louis, March 8, 1922.

To the Editor:

The arrangements of the St. Louis profession for the meeting places for the session of the A. M. A., which is to be held in their city May 22-26 next, are singularly fortunate and convenient; never has the Association been so well favored in this respect. The district in which the meeting is to take place is at the west edge of the business section of the city, easily accessible from all directions by street car or otherwise and not more than fifteen minutes' street car ride from the most distant hotel. The grouping of the meeting places is so compact that should one walk from the Registration Building (Moolah

Temple) to the farthest hall it can be done in ten minutes or less; from section to section is a matter of from one to five minutes. The convenience of the location and arrangements of the different halls is more outstanding than in any other city in which the Association has met, and a decided improvement over the accommodations which were had at the meeting in St. Louis in 1910.

The Registration Office, Post Office and Commercial Exhibit will be in the Moolah Temple (Shrine), a beautiful and commodious building on Lindell Boulevard, two blocks west of Grand avenue. At the other extremity of the group is the Odeon, the home of the St. Louis Symphony Orchestra, with a main hall which seats 2,000, and several small halls. The main hall will be used for the opening session. Its acoustics are particularly good and suited to our purpose. The Sections on Practice of Medicine and of Diseases of Children meet here. In the assembly hall of the same building the Sections on Pharmacology and Therapeutics, and on Pathology and Physiology will meet. (It will be noted that there has been an aim to foregather closely allied sections.) The Sheldon Memorial, a very beautiful new hall on Washington Avenue, one-half block west of Grand Avenue, which most admirably meets all requirements, will be the meeting place of the Sections on Ophthalmology, and Laryngology, Otology and Rhinology. The Section on Surgery, General and Abdominal, and on Obstetrics, Gynecology and Abdominal Surgery, will be held in the Third Baptist Church on Grand Avenue, a situation well suited to the demands. The Sections on Orthopedics and Nervous and Mental Diseases will meet in the Law School of the St. Louis University, on Lindell Avenue, a few steps west of Grand. The hall easily seats 500 and is both comfortable and convenient. Dermatology and Syphilis and Urology will use the large Union Methodist Church, on Delmar Avenue just west of Grand, which meets every requirement. The Sections on Gastro-Enterology, Proctology and on Preventive Medicine will use the large hall in the Musicians' Club on Pine Street, east of Grand Avenue, and next to the building of the St. Louis Medical Society, where the House of Delegates will hold its sessions. The Section on Stomatology is assigned to the assembly hall of St. Peter's Parish House, one block west of Grand on Lindell. Immediately in this district will be found three of St. Louis' most important clubs, the St. Louis University and the Columbian. Restaurants catering to every grade of patronage are numerous in the district and precautions have been taken to insure that normal rates continue during the meeting.

The St. Louis profession is preparing for an unusual attendance; hotel reservations are coming in rapidly, but it is purposed that even the late comer shall be comfortably housed. The wise traveler, however, makes his reservation as early as he finds it possible. Dr. M. B. Clopton, 3525 Pine Street, St. Louis, is Chairman of the Committee on Sections and Section Work.

ERRATUM

To the Editor:

Please insert the following erratum in the next issue of *THE JOURNAL*:

In the article, "Efficiency and Economy in Pediatric Practice," page 116, middle of second column, the statement, "moderate incomes (\$100 to \$200 monthly in the city, \$40 to \$60 in the country)," should read: "moderate incomes (\$60 to \$80 monthly in the city, \$40 to \$60 in the country)."

JOHN ZAHORSKY.

MISCELLANY

DEFENDING ANIMAL EXPERIMENTATION

An ordinance introduced in the Board of Aldermen in St. Louis contemplated the sale of ownerless dogs confined in the city pound to reputable medical schools of St. Louis for purposes of animal experimentation. The Humane Society, to whom the City of St. Louis has turned over the management of the city pound, strenuously objected to the passage of the ordinance. The members of the St. Louis Medical Society adopted resolutions urging the Board of Aldermen to adopt the bill. Several members of the St. Louis Medical Society spoke on the subject at the meeting, February 28, when the resolutions were up for adoption. Their remarks and the resolutions follow:

ANIMAL EXPERIMENTATION

M. G. SEELIG, M.D.

We have no quarrel with the so-called anti-vivisectionist because he holds tenaciously to his opinions. So to do is his right and privilege. Indeed it is stimulating and refreshing to us to note the fervor of an anti-vivisectionist's belief in himself, in these atheistic days, when so many men believe in no God at all. What the medical profession does object to most emphatically is the riot of sentimentalism which by its sheer volubility seeks to convert medical progress into shame. We object to the propaganda of a minority aimed at robbing the great majority of its most sacred heritage—the right to good health.

It is well known to each person in this room that every advance in medical sciences, every new boon furnished by medicine, for the alleviation or cure of disease, has been predicated wholly or in large part upon animal experimentation. It is equally well known that the outstanding names in medical history are of men who have put their discoveries to the test of studies on animals. It is useless, therefore,

to rehash details well known to you, and already available in hundreds of books and addresses.

Our purpose, tonight, is rather to convey in general terms to our lay friends, who have been the chief beneficiaries of the discoveries of medicine through all time, why the St. Louis Medical Society is taking the initiative in the matter of the study of disease on animals.

Whatever we may think of the state of culture of the world today, as contrasted with earlier and less hectic times, we can surely say that the spirit of science dominates as never before in history. The result of this fact is that we are living in an age of experts, by whose opinions we are largely influenced, and by whose judgments we would willingly be led, were it not for the fact that even the opinion of experts is so frequently not unanimous.

The St. Louis Medical Society can say to the public and to the honorable legislators of St. Louis, regarding the question of experimentation on animals, that in no other controversy does such emphatic unanimity of expert opinion prevail. Every physiologist throughout the world, every pathologist, every bacteriologist, every academic group of high-minded men banded together in their fight against disease, every medical school of repute, every university president of this country, every administrator of universities throughout this world, all these experts, men of the type of mind that reaches conclusions cautiously and on logical grounds—all of these stand for progress through animal experimentation. No state legislature has ever consented to compromise public health by enacting an anti-vivisection law.

We may say to the citizens of St. Louis that we recognize and honor the sentiment back of the desire to spare all dumb animals unnecessary pain and suffering; we place our love for animals second to that of no other group of men or women; we quote one of our great masters, Virchow, who said: "Which of us, whether a cherished child, a spinster, a man in the prime of his youth or a misanthrope weary of everything has not, holding the best place in his recollections, the memory of some example of fidelity, courage, or devotion, given by a dog?" We furnish evidence to show that the great Pasteur, who by his animal experiments, became a prime factor in establishing modern scientific medicine, was so moved by his love of the lower order of living things that he said he would never have had the courage to shoot a bird for sport. We challenge proof to show failure on the part of any great medical school in this country to make every reasonable provision for the comfort and the happiness and freedom from unnecessary pain of every animal within its keeping.

It is the solemn obligation of the St. Louis Medical Society to make clear to our citizenry and our legislators that medicine is a biological science; that it therefore deals with living things. Its laws are not the laws of force, but of living force, its theories deal not with matter, but with living matter. And just as the tensile strength of steel cannot be measured in oak or hickory, nor the ocean currents be determined by weather vanes, nor air pockets sounded with the plumb line, so medical problems and medical progress cannot be removed from the field of experimentation upon the living animals if we hope to unravel the countless problems bound up with public health.

It is no less an obligation of the St. Louis Medical Society to make clear the fact that right now, and right here in St. Louis, investigations are under way toward the solution of such a major problem as the cause and cure of cancer. It is inconceivable that there lives an individual who does not fervently pray for the success of these experiments, for about

one in every fifteen of us is doomed to be a victim of the cancer scourge. Prohibit experimentation on animals and you instantly stop all investigation of cancer.

The St. Louis Medical Society must speak to St. Louis and say: "Which shall it be—you or the dog?"

VIVISECTION

B. A. WILKES, M.D.

Time and talent have wrought many changes in the development of science and advancement of civilization.

Experiments have proved the value of many a hidden treasure. Experimentation has been the one great source or aid towards our progress as a nation and towards the development of our resources.

The inventor starts out with a very crude piece of material and as he develops and experiments he finally completes his task and is able to show a perfect piece of workmanship with which to bless the world. Without such experiments in all departments of science there would be little or no progress in any section of our land today.

Organized medicine today stands for the severest tests of skill and ingenuity and challenges the world to produce greater sacrifices for the development of science and to protect life. Experimentation has been the foundation of this success. Experiments on some animals in a sane and humane way resulted in the perfection of a remedy that has robbed the terrible diphtheria or most of its horror and saved the lives of thousands of helpless children. It is also true of smallpox, tetanus and rabies.

Not many years ago, a portion of this beautiful land of ours was visited every few years with the dreaded disease of yellow fever and the cities and beautiful fields of the Southland were made desolate by the dreadful malady. Now it is almost unknown within our borders. During the late World War, our soldier boys were spared the horrors of a typhoid epidemic by the inoculation of serum for the prevention of the disease. This has all been accomplished by scientific tests and experiments. It is true that some animals had to be sacrificed but thousands have been saved.

Eighty-five thousand people in the United States, alone, died of cancer last year. This was about twice the number of deaths from all casualties during the World War among our boys. A scientist has now used 1,200 mice in experimenting on a cure for this dreadful disease and thus far it is the nearest cure that has been discovered.

Compare the life of one of your family with that of 1,200 mice. There are still many lepers knocking at the door of your happy homes. Scarlet fever is still going rampant and taking the precious children from our homes. Pneumonia is sweeping the country and mowing down the brave young men of our land, as well as those in the early morning of life and those who are nearing the evening of life. These with multiple sclerosis, tuberculosis and others are hovering over the front doors of our homes and the laity are looking to the scientist and progressive medicine for safety and protection.

Shall we as a people sacrifice a few dogs or other animals occasionally or shall we sacrifice thousands of our loved ones and friends every year? Shall we continue with progressive, organized scientific medicine with every effort put forward for the prevention and cure of disease, or shall we abandon such efforts and let disease, contagion, infection, and moral depravity sweep our fair and beautiful land and claim our dearest loved ones by thousands and millions?

Vivisection is a sane, rational and scientific method of proving the value of a remedy or method by medicine or surgery for the prevention of sickness or cure of disease.

Which would you sacrifice today, if the matter was put squarely before you—the life of a dog or one of your loved ones? Who is your friend when the ravages of some dire disease sneak into your bed chamber as a thief in the night?

I believe the public will gladly welcome any rational, scientific means or methods that may be used for the prevention of disease and relief of suffering when they are rightly informed and all the facts are clearly put before them.

SOME TRUTHS ABOUT ANIMAL EXPERIMENTATION

A. G. POHLMAN, M.D.

To ascertain the value in deductions one must first be sure of the truth in the premises. Without facts, many pleasant hours may be spent in argument but not profitably. Let us therefore consider certain facts.

Mice were carried on submarines, and canaries are taken into the mines. Can anyone think of a more dastardly trick than subjecting a poor, harmless little creature to poison fumes so that the frantic efforts to escape may be used as a signal of danger? Can one really visualize the horrible idea of purposely infecting rats with *Azoa* knowing full well they will carry paratyphoid and spread this infection to their fellows? Is not every little child taught that it is wicked to impale insects on pins and yet are not people instructed to deal with the bed-bug through the kerosene rather than the benzine route on the physical basis that the heavier oil will plug the respiratory tubules more successfully and therefore suffocate the insect? Does anyone who feeds phosphorous paste to roaches not realize that the treatment does not tickle the roach to death, and there can be no question that roach agony is not skillfully depicted in the advertisements? Does the lady who leans toward live goose feathers know the conditions under which these feathers are taken? The man who wears the astrakan collar is surely aware that the fur is taken from a full-term, unborn sheep under the most pitiful circumstances. Does anyone consider the pregnant sow, stuck and strung up by the heels and does not the pigbag filled with almost full-term piglings slide gracefully into the fertilizer tank? Have you ever observed the killing of lamb—that symbol of innocence—and how careful the operator is that no blood contaminate the wool?

It is obvious that our sympathies are not particularly overstrained on animals which are useful when they are dead. Neither are we greatly concerned in the manner of their killing, nor do we waste much time and energy in the elimination of the so-called pests. The bird lover cherished no great affection for the cat and the cat fancier disregards birds. But the Audubon Society has it on the friends of *Felis*, because birds are good business; they have a cash value; they are an economic asset. Perhaps we harden our sensibilities or close our eyes to the cow, the pig, and the sheep because we are concerned with their meat and their hide. Some people, however, go fanatic and even become vegetarians.

We have an organization which specializes mainly on three types of domestic animals—the horse, the dog and the cat. We have created certain sentiment about these animals and perhaps it is because they are not commonly eaten. The horse is a large, cumbersome animal and therefore not available for

experimental purposes excepting in the production of sera and the like. He is a clean, upstanding, friendly, useful animal, and if he is not well treated in his avocational employment as a generator of antitoxins, let the Humane Society see to it that drastic measures are employed. Did anyone ever hear of the mistreatment of one of the serum horses and does the Humane Society really believe the only reason these animals are well treated is on account of the strong arm of the law?

The problem of the dog and the cat may be simmered down to the dog. The cat walks by itself and does not display the affection of the dog. Neither is it so thoroughly domesticated as the dog. Folks drown litters of cats without compunction and without even giving the poor, blind little animals a sporting chance. Just so we deprive the cow of her calf and expose the maternal animal to vicarious sex reactions, which can only be classed among the indecencies by those who freely indulge in translated personality. Are numbers of dead calves ever found about dairy farms? Perhaps, after all, what we do not know does not worry us. We may dismiss the cat as a near-domesticated form of no great usefulness although its alleged rescue from tree tops is said to create much neighborhood excitement.

The dog is with us to the over-flowing and is probably the most common house pet. One must indeed love a dog to overlook his glaring peculiarities in physiological and psychological reaction not to mention his pathology and parasitology. But the dog's loving disposition covers a multitude of sins and he, more than any other form, is, because of his size and demeanor, a recipient of much misdirected maternal solicitude. One could not very well take a horse on one's lap. The dog through ages of selection has established himself in a recognized place among both wild and civilized peoples. He deserves decent treatment and the Humane Society has as one of its functions this very thing. It would follow logically that the Humane Society would therefore welcome among its members all people who are actively interested in the life of the dog, and also all those who are actively interested in the purposeful death of the dog.

The Humane Society realizes that dogs are used for experimental purposes and this to the Humane Society constitutes a menace to the good of our modern culture. This is a blot upon the scutcheon of fair dealing and right living. This fact constitutes a gross immorality and brutality on the part of a few who do the alleged dastardly deeds to dogs, and thereby cause much mental anguish on the part of some of the friends of dogs. I said some of the friends of dogs because I too wish to pose as an example. I became mixed up with animal experimentation at the early age of eight and I take the liberty of talking in the first person singular because I desire to experiment on dogs. I said I was a friend of dogs and almost nightly coax my neighbor's hound from my fireside with a bit of food rather than to drag him out by the scruff of his neck.

I look with interest upon the upper canine teeth of all dogs. I have been studying the reactions of tissue implants in rabbits. If I was not convinced that the reactions in the rabbit were like those in the human being, I would use accessible areas on this first person singular as check experiments. Some time ago I spoke before the Dental Research Society on the problem of the pulpless tooth. What I wish to find out is briefly this: "Will an absorbable material in the pulp chamber cause a regeneration of connective tissue, or will it only facilitate the plugging of the apical foramen?" The Dental Research Council has done me the honor to say that this is one of the most important problems in modern den-

tistry. It may perhaps solve in part the failure of the devitalized tooth. One of my dental colleagues was so much enamoured with the idea that he even suggested trying the work on the deciduous teeth of children where there are cavities and where the pulp canal cannot be filled according to modern technique. But one cannot experiment on man without his full knowledge and willing consent and this eliminates the possessors of deciduous dentition from the picture. Therefore, I must use either adult human beings or dogs. My own teeth are too few, but if I can obtain a sufficient number of volunteers who will sacrifice a tooth or two after a certain number of days I can at least get preliminary results. It would be more desirable if the volunteers would also give me the tooth to either side and a goodly piece of their jaw.

But now really what assurance has the Humane Society that I will treat these dogs carefully; that my experiments will be painless; that the dog shall not suffer unreasonably after the tooth has been filled, and that his death shall be an instant one? The answer to this is both logical and psychological. If I would obtain proper results I cannot treat my animals in any way different than I would a human being. Psychologically, the Humane Society has time and time again demonstrated evidences of a great faith. They will therefore examine my past record and will not find my name on the police blotter nor can they bring forward any evidence that I have ever willfully harmed man, woman, child or animal. So being possessed of this great faith the Humane Society will say: May not the end results of this problem, which calls for the shortening of the life of a hundred dogs, be as productive of good as, for example, the shortening of the life of a hundred hogs? We will let this man have his animals and we will do a little watchful waiting. We will see to it that the animals are decently treated, or rather, being possessed of great faith, they will say, perhaps, if I could trust the life of my child to this man perhaps he may be also safe with dogs.

Some years ago it was my privilege to speak on the medical referendum and I wish to repeat one of my stock statements: any individual who is practicing the healing art in any of its forms and is not vitally concerned with the problem of the public health and the prevention of disease, is a menace to society. What shall we say of those who would willfully block the movement of animal experimentation and who are they that each and every problem shall be justified in their sight?

Anyone may make a mistake. Anyone may have actual conditions misrepresented to him. Anyone may be overcome by seductive propaganda. The Academy of Science, the Natural History Museum Association, and the St. Louis Medical Society have organized speakers' bureaus. The function of these speakers is to go out to the people with first-hand information on any and all problems which concern human interests, that false doctrines and misinformation may be deleted. I take it that the antivivisection movement is blocking the way to information which concerns the life, the health and the happiness of the people. The work I wish to do and the work others wish to do is not only reasonably justifiable, but it is actually imperative.

RESOLUTIONS ON ANIMAL EXPERIMENTATION

WHEREAS, The unrestricted use of animals is absolutely essential for the teaching of medicine and the conquest of disease not yet brought completely under control, and

WHEREAS, It is only through the use of animals that medicine can be taught, that it is possible to

make diagnoses and to prepare medication for a large number of diseases, such as diphtheria, lock-jaw, hydrophobia, smallpox, tuberculosis, syphilis and a host of others, and

WHEREAS, It has only been through the use of animals that we have been able to free ourselves of the scourge of childbed fever, thus to give the baby in arms to its own mother, to free ourselves from typhoid fever, yellow fever and plague, and to develop methods for the reclaiming of our injured and maimed soldiers and otherwise mutilated individuals, and

WHEREAS, Through the use of dogs, students especially can be adequately trained so that they do not meet their first patients without previous experience and the skilled surgeon is enabled to devise immediately new methods of treating a rare kind of injury coming to his attention, and

WHEREAS, This use of animals is solely to obtain knowledge for the alleviation of human suffering, which knowledge surgeons and medical investigators have frequently furnished at the expense of their own lives, and

WHEREAS, It has come to our attention that for some time past the advancement of medical and scientific knowledge has been seriously hampered in St. Louis through the inability of our laboratories to obtain sufficient animal material, and

WHEREAS, We know that the animals used in our laboratories are well cared for and are humanely treated; therefore, be it

Resolved by the St. Louis Medical Society, That we do hereby heartily endorse the proposed ordinance now before the Board of Aldermen and respectfully urge its passage in the interests of humanity and of public health and safety in order that men can be properly trained for the practice of medicine; that we may advance our knowledge so as to bring under control diseases before which we are still practically helpless; and, finally, in order to protect that fair name of our city which is already regarded as one of the leading centers of medical learning in this country, a position it cannot hope to hold unless given unrestricted opportunity to advance.

NOT PART OF GOD'S PLAN

A minister of ripe experience spoke at the funeral of an old friend in Kansas City not long ago. The friend was a useful and honored citizen who had died in his prime. Referring to this premature death the minister said, in effect:

"We try to say such a death is for the best. But we know it is not for the best that such a man should die before his natural time. We might reasonably have expected him to live fifteen or twenty years longer, in useful service to the community and in delightful intercourse with his family and friends. His death is a reflection on our civilization. It shows how little headway we have made in the task the Creator assigned us to subdue the earth. It is the duty of society to get such command of Nature that there shall be no premature deaths."

Was not the minister right? How often have we all listened to a funeral discourse in which the speaker labored to comfort the mourners by assuring them that the death of a person not yet old was the will of God and part of the divine plan? Yet have we not felt in our hearts that we knew better?

We do know better unless we assume that what-

ever is right; that evil is what God wills. If that is true, why do we seek to overcome evil? Why do medical men labor with devotion to cure disease? Why did investigators expose themselves to death from yellow fever in Cuba in order to discover the carrier of the germ? If premature death is for the best, then all our ideals are topsy-turvy.

We may be sure that the divine plan recognizes evil as evil, to be overcome and done away with. Before the discovery of the anti-toxin treatment, multitudes of children died every year from diphtheria. It was not the will of God that those children should perish. It was His will that they live. It was not the will of God that the millions of young men who died in the war should come to an untimely end, although it was His will that they follow the dictates of duty even to death. It was His will that the peace of justice should prevail.

In the present imperfect scheme of things, in the present partial development of human knowledge and character, a death before normal old age may be the part of duty; may be inevitable. But there is nothing to be gained in refusing to face the fact that it is a heart-breaking evil.—*Kansas City Star*.

Lexington, Ky. Then he came to Caldwell County in 1860 and purchased a section of land south of Breckenridge for \$2.50 an acre, part of which he still owns.

The physician has been intimately acquainted with several noted men of history, and remembers, when a boy 7 years old, seeing Lafayette, when that French general came to receive a large grant of land given him by the State of Kentucky. Doctor Halstead for several years was the family physician of Henry Clay and now has a cane belonging to Mr. Clay which was given to Doctor Halstead after the death of that statesman as a token of the family's esteem and friendship.

Doctor Halstead also is said to be the oldest Mason in the United States, having been initiated in Lexington in 1842.

With the exception of the loss of his sight, Doctor Halstead is a well preserved man and seems stronger and in better health now than a year ago.

Breckenridge never forgets his birthday.—*Kansas City Star*.

SOCIETY PROCEEDINGS

DOCTOR HALSTEAD 104 YEARS OLD

The biography of Breckenridge's most revered citizen is replete with superlatives. Dr. Joseph S. Halstead is three days past 104 years in age and within his memory are events that the average person relies on history to recount. March 4 was the anniversary of his birth, an event more important to Breckenridge probably than any other occasion. At any rate Breckenridge made a day of it with a proclamation by the mayor for cessation of business and silent prayer and the tolling of bells.

The proclamation, printed on handbills and distributed throughout the community, called on the citizens to pause at 12 o'clock for 104 seconds and offer silent prayer in honor of Doctor Halstead. The church bells at noon tolled 104 strokes, marking the years of this venerable man, while business came to a halt.

Doctor Halstead and his wife, who is still living at 93 years, came to this county from Lexington, Ky., in 1850. He was born in Louisville in 1818, and, two years later, the family moved to Lexington. A graduate of Transylvania Medical University in 1840, Doctor Halstead came to Missouri first in 1841 and engaged in the practice of medicine in Richmond, Mo., but after a few years returned to

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
Montgomery County Medical Society, Dec. 15, 1921.
Chariton County Medical Society, Dec. 23, 1921.
Webster County Medical Society, Dec. 27, 1921.
Clark County Medical Society, Jan. 13, 1922.
Reynolds County Medical Society, Jan. 17, 1922.
Camden County Medical Society, Feb. 8, 1922.
Schuyler County Medical Society, Feb. 10, 1922.
Perry County Medical Society, Feb. 13, 1922.
Vernon County Medical Society, March 24, 1922.
Pulaski County Medical Society, March 31, 1922.

MISSOURI STATE MEDICAL ASSOCIATION 65TH ANNUAL MEETING

The 65th annual meeting of the Association convenes at Jefferson City, Tuesday, Wednesday, Thursday, May 2, 3, 4. The program follows:

PROGRAM

HOUSE OF DELEGATES

FIRST DAY—TUESDAY, MAY 2, 1922—9:30 A. M.
SENATE CHAMBER

Roll Call.
Reading of Minutes of Previous Meeting.
Reading of President's Message and Recommendations.
Report of Committee on Arrangements.
Report of Secretary.
Report of Treasurer.
Report of Committee on Scientific Work.
Report of Committee on Health and Public Instruction.
Report of Defense Committee.
Report of Committee on Medical Education.
Report of Committee on Hospitals.
Report of Committee on Cancer.
Report of Committee on Vaccination.
Report of Committee on Blindness.

Report of Committee on Medical Expert Testimony.
 Report of Committee on Constitution and By-Laws.
 Report of Committee on Necrology.
 Appointment of Committee on Nominations.

Recess till 3 P. M.

Report of the Council.
 Report of Reference Committees.
 Reading of Resolutions, Memorials, etc.
 Selection of Place of Next Meeting.
 Miscellaneous business.

SECOND DAY—WEDNESDAY, MAY 3, 1922—2 P. M.

SENATE CHAMBER

Reading of Minutes.
 Report of Nominating Committee.
 Election of Officers.
 Unfinished Business.

GENERAL MEETING

TUESDAY, MAY 2, 1922—9:30 A. M.

HOUSE OF REPRESENTATIVES

Glaucoma Following Cataract Operation.....
Joseph S. Lichtenberg, M. D., Kansas City
 The Pension Law for the Blind from the Ophthalmologist's Standpoint
Harvey J. Lamb, M. D., St. Louis
 Diagnosis of Diseases of the Esophagus.....
James R. McVay, M. D., Kansas City
 Some Points on Differential Diagnosis Between Chronic Appendicitis
 and Simulating Conditions.....Jabez N. Jackson, M. D., Kansas City
 The Medical Treatment of Gastric Ulcer.....James I. Tyree, M. D., Joplin
 A Discussion of Oxygen Want From the Experimental Standpoint.....
Chas. W. Greene, M. D., Columbia

GENERAL MEETING

TUESDAY, MAY 2, 1922—1:30 P. M.

HOUSE OF REPRESENTATIVES

The Problem of the Moderately Hypertrophied Prostate.....
H. McClure Young, M. D., St. Louis

SYMPOSIUM ON HEMATURIA

Tumor of the Kidney as a Cause of Hematuria.....
F. M. McCallum, M. D., Kansas City
 Bladder Lesion as a Cause of Hematuria.....
J. P. Henderson, M. D., Kansas City
 Disease of the Prostate and Urethra as a Cause of Hematuria.....
J. Edward Burns, M. D., Kansas City
 Infection as a Cause of Hematuria.....Nelse F. Ockerblad, M. D., Kansas City
 Obscure Causes of Hematuria.....C. S. Capell, M. D., Kansas City
 Discussion opened by Dr. E. G. Mark and Dr. Clinton K. Smith,
 Kansas City.
 A Differential on Vertebral Lesions, Clinical and Radiographic.....
A. E. Horwitz, M. D., and Joseph Peden, M. D., St. Louis

GENERAL MEETING

TUESDAY, MAY 2, 1922—7:30 P. M.

HOUSE OF REPRESENTATIVES

President's Address.....Albert H. Hamel, M. D., St. Louis
 Address.....Hon. Arthur M. Hyde, Governor
 A Statement of the Plan Re-establishing the Four Years' Course in
 the School of Medicine at the University of Missouri.....
Guy L. Noyes, M. D., Columbia
 The Re-organization and Consolidation of the State Hospitals of Mis-
 souri.....G. P. Ard, M. D., Jefferson City

GENERAL MEETING

WEDNESDAY, MAY 3, 1922—9 A. M.

HOUSE OF REPRESENTATIVES

- The Permanent Cure for Trigeminal Neuralgia.....W. T. Coughlin, M. D., St. Louis
 Surgical Treatment of Carcinoma of the Lip.....W. E. Leighton, M. D., St. Louis
 Carcinoma of the Breast; Its Diagnosis and Treatment.....C. F. Sherwin, M. D., St. Louis
 Carcinoma of the Cecum.....J. C. Montgomery, M. D., Kansas City

SYMPOSIUM ON CHOLECYSTITIS

- Some Aspects of the Pathology of Cholecystitis in Relation to Its
 Surgical Treatment.....Evarts A. Graham, M. D., St. Louis
 Cholecystitis and Cholelithiasis; Medical Aspect and Treatment.....F. D. Gorham, M. D., St. Louis
 Cholecystitis and Cholelithiasis; Surgical Treatment.....Roland Hill, M. D., St. Louis

GENERAL MEETING

WEDNESDAY, MAY 3, 1922—1:30 P. M.

HOUSE OF REPRESENTATIVES

- The Treatment of Pelvic Inflammation with Milk Injections.....George Gellhorn, M. D., St. Louis
 The Selective Management of Uterine Myoma Cases in the Light of
 Recent Advances in Treatment.....H. S. Crossen, M. D., St. Louis
 Vomiting of Pregnancy.....E. C. White, M. D., Kansas City
 Care of Second Summer Babies.....O. B. Hall, M. D., Warrensburg
 Aerodynia in Infants.....John Zahorsky, M. D., St. Louis
 Congenital Syphilis and the Eruption of the First Teeth.....Ellsworth E. Moody, M. D., Joplin
 Sinus Infection in Children.....A. N. Altringer, M. D., Kansas City
 A Study of Five Hundred Intradermic Vaccinations with Smallpox
 Vaccine.....Tom Twyman, M. D., Independence
 Control of Diphtheria in Missouri.....P. G. Hurford, M. D., St. Louis

GENERAL MEETING

WEDNESDAY, MAY 3, 1922—7:30 P. M.

HOUSE OF REPRESENTATIVES

- Discussion on Medical Legislation—Medical Education and Hospital
 Standards.....H. E. Pearse, M. D., Chairman, Committee on Health and Legislation

GENERAL MEETING

THURSDAY, MAY 4, 1922—9 A. M.

HOUSE OF REPRESENTATIVES

- The Diagnosis and Treatment of Heart Failure.....Claude J. Hunt, M. D., Kansas City
 Cardiovascular Asthenia.....C. C. Conover, M. D., Kansas City
 Arterial Hypertension.....L. S. Milne, M. D., Kansas City
 Paralysis Agitans.....D. S. Booth, M. D., St. Louis
 The Newer Treatment of Bronchiectasis.....J. J. Singer, M. D., and Evarts A. Graham, M. D., St. Louis
 Treatment of Pernicious Anemia with Arsenic and Hydrochloric Acid
P. T. Bohan, M. D., Kansas City
 Immediate Cure of Catarrhal Deafness. Ideal Mastoid Antrum Open-
 ing by Way of the Auditory Canal. Cases Still Relieved 15 to 25
 Years and More Afterwards.....Robert Barclay, M. D., St. Louis

GENERAL MEETING

THURSDAY, MAY 4, 1922—1:30 P. M.

HOUSE OF REPRESENTATIVES

Program Supplied by Missouri State Radiological Society.

Gastrointestinal Studies.....	Gent Perry, M. D., St. Louis
Subject to be Announced.....	O. H. McCandless, M. D., Kansas City
Diaphragmatic Hernia of the Stomach: Non-traumatic.....	E. H. Kessler, M. D., St. Louis
Radium Therapy: Systemic Classification of Uses.....	E. H. Skinner, M. D., Kansas City
High Voltage X-Ray Therapy: Mechanical and Physical Problems.....	E. C. Ernst, M. D., St. Louis
The Comparison of Clinical and Radiological Findings in Some of the Chest Conditions.....	M. B. Titterington, M. D., and P. F. Titterington, M. D., St. Louis
Business Session.....	} For Members of Missouri State Radiological Society.
Election of Officers.....	
Annual Banquet.....	

FOURTEENTH ANNUAL MEETING OF MISSOURI
SOCIETY OF MEDICAL SECRETARIES

JEFFERSON CITY, WEDNESDAY, MAY 3, 1922—3 P. M.

SENATE LOUNGING ROOM

OFFICERS

President.....	J. D. Brummall, Salisbury
First Vice President.....	R. E. Crabtree, Butler
Second Vice President.....	J. F. Chandler, Oregon
Secretary.....	E. E. Brunner, Farmington

PROGRAM

Roll Call.
Reading Minutes of Previous Meeting.
Election of Officers.

Program to be completed before meeting.

SECRETARIES' BANQUET, MADISON HOTEL

WEDNESDAY, MAY 3, 1922—6 P. M.

Address.....A. H. Hamel, M. D.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-fourth Meeting, January 9, 1922

1. EXHIBITION OF CASES.

A. DEMONSTRATION OF A PATIENT WITH A COMPRESSION MYELITIS.—
By DR. ERNEST SACHS.

This patient has had an extreme spinal curvature since a child. It has become progressively worse. About a year and a half ago he developed a spastic paraplegia with complete paralysis of all muscles of his lower extremities. By X-ray tuberculosis was excluded and it was therefore believed that the spinal curvature was responsible for the paralysis. At operation the fourth to the seventh dorsal spinous processes were removed and a large collection of fat was found extradurally, at some points 1 cm.

in thickness. The cord was compressed and therefore a spinal decompression was done, the dura was opened widely and left open. Muscles closed in layers, silver wire and fine silk. Within 48 hours the patient began to move his extensor muscles of his lower extremities very actively. He has, as yet, one week after operation, not regained much use of his flexors. The return of power in this way is rather unusual, for, as a rule, flexors recover before extensors. These cases have sometimes been described as lipomas compressing the cord, though I am inclined to think that the fat was merely an attempt on the part of nature to fill up a dead space.

DISCUSSION

Dr. Barney Brooks: I would like to ask Dr. Sachs whether he thinks the good followed the decompression or the removal of fat.

Dr. Sachs: I think opening the dura and doing a cord decompression is the thing that helped him.

B. NUTRITIONAL DISORDER.—By DR. W. McKIM MARRIOTT.

P. J. W. Age 5 weeks. Born one month premature. Patient was fed at irregular intervals and lost weight. On admission to the hospital patient weighed 1850 grams, or 150 grams less than birth weight. The temperature was subnormal. Infant was poorly developed and there was no subcutaneous fat. Typical picture of severe malnutrition, or athrepsia. Infant was fed on breast milk but failed to gain although taking as much as 180 calories per kilo of body weight per day. Examination of the stools showed that only 45 per cent. of the fat of the food was utilized. The remainder was excreted in the form of soaps and neutral fat in the stools. In such infants it is known that the blood volume is considerably diminished and that the rate of circulation is below normal. An attempt to restore more normal conditions was made by giving a transfusion of citrated whole blood and 35 c.c. were given into the superior longitudinal sinus. Following this transfusion the infant began to gain in weight steadily, and this gain has continued up to the present time. The feeding was not changed. Examination of the stools one week later showed that over 80 per cent. of the fat of the food was utilized. The case is a striking example of the beneficial results obtained by restoring normal physiological conditions to the body of an athreptic infant.

C. CONGENITAL MALFORMATION OF OF THE AUDITORY ORGANS.—By DR. W. McKIM MARRIOTT and DR. R. J. TERRY.

This patient is 4 years of age. A number of ancestors on her mother's side have deformities of the ears. The patient was healthy at birth, developed normally but has never been able to hear well. The child was brought to the hospital on account of the deformity of her ears. On each side the external auditory canal is absent. There is a slight dimple just below the helix on the right side. The distance between the helix and antihelix is wider than normal and in front of these two points is a lobule of soft tissue attached by a cartilaginous base. The patient is totally deaf in the left ear, but can hear loud noises in the right ear, provided the mouth is held open. Vestibular tests performed by Dr. Lyman show the right labyrinth to function fairly well. The left labyrinth shows about 50 per cent. normal function.

In the left eye in the lower and outer margin of the cornea is a circular growth about 4x6 m., lymphoid in appearance, elevated about 2 mm. In the center there is a small hair projecting. The growth appears to be misplaced embryonic tissue. The child walks with an unsteady gait and has difficulty in maintaining her balance. This would seem to be due to the lack of vestibular function. The remainder of the physical examination is negative. The child's mentality is somewhat below normal, which may be partly explained on the basis of her inability to hear well. Before speculating as to the cause of the apparent absence of the canal it may be well to await further information as to the real condition which may come to light when the surgeons have completed their operation.

It is of interest to find an underdeveloped lower jaw in association with the defects of the auricle. The symmetrical lobules of soft tissue which have been mentioned appear to be tragi displaced it is true with reference to the rest of the auricle, but retaining the primitive relationship of embryonic life to the lower jaw.

DISCUSSION

Dr. Ernest Sachs: What I am interested in particularly is to know whether there is a lesion of the pons or whether there is a lesion of the cochlear mechanism. It seems to me if the child has difficulty in walking, that there may be a congenital anomaly in the pons. The tumors might also have some relation to it. Another thing which occurred to me is the possibility of the tumors being fibromas, which might involve the 8th nerve. Has an X-ray picture been taken of the head? It seems to me, that it would be of interest to take some pictures of her labyrinth. The fact that she has trouble in walking certainly suggests that the trouble is more in the labyrinth than in the ear.

2. BLOOD PRESSURE RESPONSES TO SUPRA-SYSTOLIC COMPRESSION OF TISSUES.—By MR. K. A. MARTIN and DR. H. L. WHITE.

Compression of the forearm great enough to produce a local ischemia produces a rise in systolic and diastolic arterial pressures, the systolic pressure tending to rise above the compressing pressure.

The rise in pressure does not manifest itself until the compression has lasted 15 to 45 minutes, and then is usually maintained as long as the compression is maintained, at least up to 60 minutes. It appears earlier with smoking than without. Headache, sweating and a sensation of heat usually accompany the rise in pressure; in smoking nausea also is usually present, even in the case of habitual smokers.

Marked waves of blood pressure have been observed to initiate the rise. Whether or not this is a constant phenomenon is not certain.

The arterial pressure rapidly returns to its initial level on release of compression. In two cases the blood pressure fell to or below its initial level before decompression. This was presumably due to vasomotor fatigue and was accompanied by symptoms of collapse.

The rise in pressure is probably due to splanchnic vasoconstriction. It is accompanied by an increase in volume of the opposite arm, which is probably passive.

No significant change in blood pressure resulted on brief compression of the kidney in the anesthetized rabbit and dog, nor in the decerebrate cat.

The suggestion is made that these findings may have some bearing on the etiology of clinical hypertension.

DISCUSSION

Dr. Joseph Erlanger: One thing of interest in connection with these experiments is the manner in which they developed. The physiological laboratory had agreed to make for the Committee to Study the Tobacco Problem some observations on the effect of tobacco smoking on the arterial pressure. Mr. Martin and Dr. (then Mr.) White undertook to obtain this information and proceeded to develop apparatus suited to the problem. It was while working with this apparatus that they happened upon the response to compression which forms the subject of their communication. In other words, as so often has been the case, work of a routine type when carried out with all the faculties alive is very apt to develop into interesting, totally unanticipated, problems.

The speaker has pointed out that the hypothesis that has been advanced becomes invalid if the blood pressure responses obtained are purely psychical in origin and due to the discomfort the subject experiences. That the discomfort is at most a relatively unimportant factor is indicated by the fact that as

a rule the subject experiences more of it after decompression than during compression, for the return of blood to the part is accompanied by the usual tingling sensation. But even if it were found that this blood pressure reaction to compression disappears under ether anesthesia it would not be necessary to conclude that it is subjective, for even the blood pressure response to cerebral compression, which is due to direct mechanical action upon the vasoconstrictor center, is apt to fail under ether anesthesia.

Dr. Arthur E. Strauss: The experiment is particularly interesting to me as Mr. Martin mentioned certain things that I have noted clinically on many occasions. At no time have I compressed the arm the length of time he has in these experiments; however, on taking the blood pressure by the usual clinical method, I have noticed that on the first observation it would be, let us say, 120 and on further observation 125-130 or more. This change in blood pressure has been heretofore unexplained. This relation has been especially interesting in teaching physical diagnosis. I would get together a group of students to take blood pressure readings. First, I would take the reading and then ask for confirmation and in these confirmations would get a variance of readings, usually somewhat higher. In checking up I would find almost invariably that the blood pressure noted by the student was the pressure at that particular time, and this bears out the experimental fact that the systolic pressure is raised by continued compression. I have made no observations on diastolic pressure. The question seems to be whether this rise is due to the psychic condition of the patient. This can be ruled out by the fact that the same thing is noted clinically in those with sensitive natures and those of more phlegmatic mien. The explanations advanced tonight might account for the variations in blood pressure as noted by different observers on the same patient at close as well as widely varying times. Mr. Martin mentioned that this change does not occur until 25 to 30 minutes after the compression is applied. I would like to ask Mr. Martin if he observed during his experiments whether there was a temporary rise which later fell and then rose again, or whether there was no such temporary rise as is noted clinically?

Dr. Barney Brooks: This paper is an important contribution. The conclusions which have been reached are somewhat different from those one would reach from clinical experience. That the increase in blood pressure noted is not due to a decrease in the capillary bed is shown by the facts that it does not show itself immediately after the pressure is applied and no such elevation follows amputation of an entire lower extremity. That it is not a nerve reflex phenomenon is, I believe, not sufficiently proven by the "twilight sleep" experiment. In fact, I doubt if the rise in systemic blood pressure would follow the application of pressure to the extremity of a completely anesthetized patient or one in whom the extremity was completely anesthetic. I would suggest that the experiment be tried with such individuals as subjects.

Mr. K. A. Martin: We tried some experiments with the tourniquet placed on the arm, which produced more pain than experienced by the compression cuffs and in these cases we observed no increase in the patient's blood pressure. Possibly this would have caused an increase in blood pressure if continued long enough, since the time required to bring about this reaction is possibly longer with blood in the tissues than in the ischemic tissues. The pain produced by the tourniquet was too great to allow us to carry the experiments to that point. When the pressure is released from the compression cuffs the pain is rather severe, but not

while the pressure is applied. It is on release of the pressure that the blood pressure falls. It is a common observation to find a transient increase of blood pressure of 6-10 mm. taking place when the pressure is first applied. It usually falls back to the initial level before the described reaction takes place.

3. THE CHOICE BETWEEN RADIUM, X-RAY, AND THE KNIFE IN THE TREATMENT OF UTERINE MYOMA AND UTERINE CANCER.—By DR. H. S. CROSSEN.

This subject presents much confusion at present due largely to two factors, namely, (a) the newness and incompleteness of the knowledge concerning radium and X-ray therapy, with new facts coming in rapidly, and (b) radical pronouncements as to treatment by workers familiar with only one or two of the measures under consideration. Having all three measures available the author has for a considerable time been making a study of this particular phase of the subject, i. e., of the choice in the individual case. His conclusions, represented in practice in the Gynecologic Service, are for the present as follows:

In uterine myoma and in uterine cancer the three measures are not antagonistic or exclusive one of the other; rather they are supplementary. Each has its field in which it is clearly the best treatment, the edges of the fields of course merging.

UTERINE MYOMA

Radium is the preferable form of treatment in the following class of cases:

1. In uncomplicated small and medium sized myomata in patients in the menopause or near the end of the child-bearing period. Nearly all properly selected cases prove amenable to this treatment. In approximately 400 reported cases satisfactory results were secured in about 95 per cent. The radium application should be accompanied with preliminary diagnostic curettage to exclude malignancy.

2. In patients with kidney, heart and other complications giving undue operative risk, radium may reasonably be tried in the somewhat larger growths, especially in those cases in which X-ray treatment produces marked disturbance.

X-ray treatment is indicated in the large myomata in patients presenting undue operative risk, either as a palliative measure to check bleeding until patient can be built up for operation, or for curative effect. Malignancy should be excluded by curettage, where possible. The smaller myomata also may be treated with X-ray instead of radium, if preferred, with practically the same percentage of symptomatic cures. In over 600 reported cases the bleeding was stopped in approximately 95 per cent.

Operative removal of the myoma is advisable in the following cases:

1. The larger growths, from the size of a grape fruit and upward. It is not practicable to fix an arbitrary limit of size, as other conditions modify the decision. For example, pediculated subperitoneal growths or a single large growth even if in the wall, are not so favorable for radium or X-ray treatment as a uterus enlarged to the same size by scattered intramural nodules.

2. In young women in whom preservation of the child-bearing function and of menstruation is desired, myomectomy is the preferable form of treatment where any serious treatment at all is necessary.

3. In patients presenting complications, such as appendicitis, salpingitis, inflammation or degeneration in the tumor, marked pressure symptoms, etc., the tumor should be removed if the patient is a good operative risk.

UTERINE CANCER

Radium is our most effective remedy in the advanced inoperable cases and in the borderline cases. The enlarged carcinomatous cervix melts away as by magic, and the cavity closes largely or entirely by healthy granulation. This beneficial effect is limited in extent and in most cases falls short of eradication of the cancer, i. e., the ultimate result is usually only palliative. However, in a small percentage of even the advanced cases real cures have been effected, and this gives reasonable hopes of a large percentage of cures as the use of radium is further studied.

X-Ray. In carcinoma of the uterus X-ray treatment is simply supplementary to radium and to operation. Its function is to devitalize as far as possible the outlying cancer cells, i. e., the metastatic growths and the outlying portions of the main growth which may be beyond the effective reach of radium or the knife.

Knife. In the clearly operable cases, that is, in those early cases apparently still confined to the uterus, operative removal is still the safest plan. In over one thousand reported cases of carcinoma of the cervix uteri treated by radium five years previous to the reports, about 20 per cent. were cured—practically the same percentage as by radical operation. When the cases were divided into classes it was found that more of the advanced and borderline cases were cured by radium than by operation, while of the early operable cases the percentage of cures by radium (31 per cent.) fell decidedly below that by operation (40 to 45 per cent.). It is hoped that advance in the technique of radium treatment will eventually place it far ahead of operation in the percentage of cures even in the early operable cases, but that result has not yet been attained. An important point, which seems at times to be overlooked, is that these powerful remedies, radium and X-ray, require experienced judgment and skill in their application. They are as potent as the knife, and in inexperienced hands may produce as disastrous results—either in the form of injury to important organs or as failure to obtain results that could have been obtained by a really efficient application.

In the early cases it is advisable to employ radium in addition to operation, as indicated in the following recapitulation of treatment for cancer of the uterus: In the clearly operable cases, give a heavy dose of radium, do the radical operation within a few days, and subsequently give deep X-ray treatments. In inoperable cases and in borderline cases, give a heavy dose of radium and follow with deep X-ray therapy.

DISCUSSION

Dr. F. J. Taussig: Dr. Crossen has given a very clear, judicial review of the present status of treatment in uterine cancer and fibroids. There are not only these three forms of treatment, but various combinations, radium and X-ray, X-ray and surgery, etc., so that before we have come to any final conclusions, considerable additional experience must be had. In the treatment of fibroids, particularly the ones reaching half way to the navel, I personally am inclined to favor a combination of X-ray and radium. The application of radium alone would not usually stop the growth of fibroids that have reached out of the pelvis. One favorable influence that this non-operative treatment has exerted on the public

is that women are no longer afraid to come to the doctor. The fear of operation kept many women away. They were led to believe that any sort of growth meant an operation. The case referred to by Dr. Crossen of rectal stenosis followed a heavy dosage of radium, 4500 mgm. hours, at one sitting. I consider this a very exceptional occurrence. This individual had spent most of her time in the tropics and had suffered from a severe dysentery, so it is possible that the large intestine was hypersensitive to radium, leading to profound contracture of the rectum in her case. The patient at present shows no evidence of carcinoma and it should be stated that the piece of rectum excised showed no trace of malignancy.

Dr. Hugo Ehrenfest: Dr. Crossen has presented most admirably the problem of the choice between radium, X-ray and the knife. Nobody could contradict any of the statements he made. He has failed to mention, probably because it did not pertain to the subject selected for his paper, the fact that there are many cases with small fibroids which we preferably leave alone. In regard to the choice of the proper mode of treatment in cases of carcinoma, there cannot be any doubt that the non-operative methods are rapidly gaining in favor. As well emphasized by Dr. Crossen, for the advanced and the borderline cases radium together with X-ray is already doing more than the radical operation. But even for the early cases radiologic treatment proves only slightly inferior, and as pointed out by Dr. Taussig, further improvement in the radiologic technic will certainly result in larger percentages of permanent cures. However, I doubt whether the value of any cancer treatment should be determined solely by the percentage of definite cures for at least five years. From the standpoint of the patient there certainly is some difference whether she submits to an operation with a 20 per cent. chance of immediate death, or to a treatment with practically no immediate mortality, that offers her a very good chance to live three or four more years, though mere prolongation of life statistically would be counted against the efficacy of radiologic treatment. Those of us gynecologists who never considered gynecology a surgical specialty realize probably with less concern than the general surgeon, that in the near future only a small percentage of fibroids and uterine cancers will be subjected to operations.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in the Snapp Hotel, Excelsior Springs, Monday evening, February 27. Owing to the almost impassable roads, President Hill could not be with us. Dr. J. E. Musgrave was chosen president pro tem. In spite of the inclement weather, eleven members were present. As usual, this was an enthusiastic meeting. We had one application for associate membership from an adjoining county.

Dr. E. H. Miller, of Liberty, "braved the storm" and lent his quiet dignity to the occasion. After the usual routine business the members enjoyed two very instructive papers.

Dr. S. R. McCracken reported at length an interesting case of systemic poisoning in a girl, 13, a hospital case under his care. The colon bacillus seemed to be the infecting micro-organism. The little patient had struggled through a long siege of pneumonia in both bases, as shown by radiogram. Two or three attacks of acute arthritis lent their complications, including endocarditis of pronounced type. Convalescence is in progress and the patient almost able to return to her home in Emporia, Kansas.

Dr. W. S. Wallace presented the case of a boy, age 10, with an acute lobar pneumonia, acute appendicitis complicating. The doctor brought the pneumonia to the point of safety before operating on the appendix. One-sixteenth of morphia preceded "a few whiffs of chloroform" producing all the anesthesia needed. An intestinal concretion had escaped through an opening in the gangrenous appendix. Being well walled off, there was no perceptible peritonitis following the operation. The little fellow is convalescing nicely.

All scientific procedures were fully discussed, each member present taking part.

A "clean-up" for dues—after which the "best County society in the state" adjourned.

J. J. GAINES, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The seventh meeting of the Jasper County Medical Society for the year 1922 was held Tuesday evening, February 14, at the Joplin Y. M. C. A., the president, Dr. Leaming, in the chair. The minutes of last meeting read and approved.

Dr. C. Hesselberg addressed the Society on some very important phases of blood chemistry. The address brought out some very interesting discussion.

Attendance, 25.

Meeting of February 21

The Jasper County Medical Society met in regular session Tuesday evening, February 21, at the Joplin Y. M. C. A., the president, Dr. Leaming, in the chair.

Dr. P. T. Bohan, of Kansas City, addressed the Society on heart failure and various cardiac irregularities. The address was illustrated with lantern slides and charts and proved extremely interesting. Drs. Barson, Graham, Grantham, Coombs, Williams and Tyree entered into the discussion.

JAMES I. TYREE, M.D., Secretary.

ST. FRANCOIS COUNTY MEDICAL SOCIETY

The St. Francois County Medical Society met at Elvins, January 13. Those present numbered sixteen, among whom was Dr. E. J. Goodwin, of St. Louis, secretary of the State Medical Association.

The election of officers ensued with the following results: President, Dr. Edgar E. Whiteside, of Elvins; vice president, Dr. G. W. Gale, of Bismarck; secretary, Dr. G. E. Cecil, of Flat River, re-elected.

The Society adjourned long enough to go to the dining room where a four-course dinner was served, after which we had an address by Doctor Goodwin which was very interesting and timely, particular stress being laid upon the importance of medical organization—a thing of which this county is particularly in need. Had it not been for the cold weather there would have been a larger attendance as I had word from several at a distance who said they would be present. All those present seemed enthusiastic and expressed a desire to see our County Society progress. A vote of thanks was extended to Doctor Goodwin for his visit and talk.

Doctor Keith made a motion, which carried, that our February meeting be held at the Y. M. C. A., Flat River.

Meeting adjourned at 11:15 p. m.

Meeting of February 13

The meeting was called to order by the President, Dr. Edgar E. Whiteside, February 13, at 7:30 p. m.

Those present were: Drs. E. E. Whiteside, of Elvins; K. E. Sherrill, of Elvins; Turley and Fuller, of Desloge; W. C. Reese, Elvins; Cecil, Flat River, and Edwin E. Whiteside, of Flat River, visitor.

In the absence of a program several interesting cases were reported and a general discussion followed.

The question of erecting a county hospital was brought up and a committee was appointed to wait on the county court relative to taking the necessary steps for calling an election to vote on the appropriation of funds necessary to build and maintain a hospital.

The Society adjourned to meet at Doctor Turley's office, Desloge, the second Monday in March.

G. E. CECIL, M.D., Secretary.

BOOK REVIEWS

THE CARE OF EYE CASES. A Manual for the Nurse, Practitioner and Student. By Robert Henry Elliot, M.D., B.S. (Lond.), Sc.D.C. (Edin.), F.R.C.S. (Eng.), Lieutenant-Colonel, I. M. S. (Retired). Late Superintendent of the Government Ophthalmic Hospital, Madras and Professor of Ophthalmology, Medical College, Madras, etc. Cloth, Pp. 172, with 135 illustrations. London: Henry Frowde, Oxford Medical Publication, American branch, 35 W. 32d St., New York City, 1921.

A very clear and concise exposition of what a nurse should know about the care of eye cases as they occur in hospitals. It should be in every hospital library. Its brevity is such that it would probably be read even by the busy nurse. The opening chapter, on anatomy of the eye and orbit, though of only nine pages including the well selected illustrations, is especially good. The structures and their functions are adequately described for the purpose of the book, with the important exceptions of the lens and cornea, which are barely mentioned.

The chapters on Asepsis and Antisepsis, Drops, Remedial Measures, Bandaging and Dressings, Preparations for Operation, and Care After Operation are definite and practical.

A chapter is devoted to subconjunctival injections in which the indications for their use are given and it is said that they "can quite well be made by the nurse"—both out of place in a book for nurses. Another objectionable bit of advice is that the nurse may instil cocaine for the purpose of making eversion of the lids less difficult for the inexperienced nurse, or application of drops less painful for the patient. One would infer that the author would have the nurse make use of cocaine ad libitum.

The chapters on diseases are too sketchy to be very instructive, and give attention to the medical and surgical problems with little consideration to the nursing features.

There is a chapter on diagnostic instruments, with illustrations; an appendix, with illustrations of surgical instruments, and tables of the instruments used in the different operations with short explanations of their uses. This will be helpful to the nurse who is to assist at operations.

R. J. C.

A YOUNG GIRL'S DIARY. Translated by Edan and Cedar Paul. Prefaced with a letter by Sigmund Freud. New York: Thomas Seltzer, 1921.

Unlike many books presumably written by young girls ("The Young Visitors" might be cited as an example) all the reviewers accept "A Young Girl's

Diary" as authentic and not something cooked up by a professional writer. In the preface Freud says: "This diary is a gem. Never before, I believe, has anything been written enabling us to see so clearly into the soul of a young girl during the years of puberal development."

Naturally, interest in the book centers in the sex reaction. Anyone who tries to keep the secrets of sex from a girl (the diary was begun at the age of eleven and runs into the fourteenth year) should read this book. It shows how the mysteries of sex vaguely develop and then take possession of the whole mind. Perhaps one can best give an idea of these reactions by citations from the text, for example: "Hella and I have just been reading the Encyclopedia about Birth and Pregnancy, and I on my own about abor—; we came across the words Embryo and Foetus, and I said nothing at the time but tied two knots in my handkerchief to remind me and yesterday I looked them up."

At thirteen she writes of venereal disease: "All officers have venereal disease as a matter of course." And later speaking of a young woman she has met the girl writes: "The young wife has got a divorce from her husband, for she was infected by him on her wedding night—because of that she got a frightful eruption all over her body and her face, and most likely her hair will fall out; is it not frightful."

Of course, there are many things other than sex set down in her diary by this young girl. It is a human document and while Vienna is not New York the difference of environment is not so great as might be thought. The book has been highly recommended by such well-known educators and psychologists as Prof. G. Stanley Hall, Dr. A. A. Brill and Prof. Neary T. Whitley as good reading for parents and teachers.

R. L. T.

HEART DISEASE AND PREGNANCY. By Sir James Mackenzie, M.D., F.R.C.P., LL.D., Edinburg and Aberdeen, F.R.S., F.R.C.P.I.; Hon. Consulting Physician to His Majesty, the King, in Scotland, etc. Cloth. Price, \$3.50. Pp. 138. London: Henry Frowde, Oxford Medical Publication, American branch, 35 W. 32d St., New York City, 1921.

This monograph completely covers the subject which has been singularly overlooked by authors since the treatise of Angus McDonald, "The Bearings of Chronic Diseases of the Heart Upon Pregnancy, Parturition and Childbirth," published in 1878.

Mackenzie was struck by the fact that in a paper on "Pregnancy Complicated by Heart Disease," which he had heard read before a medical meeting, no reference was made to the recent advance in cardiology. He then turned back to the notes which he had made twenty years before during the time he himself was engaged in midwifery practice, and applied the principles then observed to the recognition of the peculiar features of the problems under consideration.

Sir James emphasizes, especially to obstetric physicians, those principles as they may be applied in order to direct attention to the newer knowledge.

He takes up normal changes in the circulatory apparatus in pregnancy and the puerperium; then the change in the diseased heart in pregnancy. A chapter is devoted to the neurotic heart and one to the management of pregnancy complicated by heart disease. He closes with a graphic summary.

The book is a classic and is worthy of the most careful reading.

G. C. M.

BACTERIOLOGY; GENERAL, PATHOLOGICAL AND INSTANTIAL. By Arthur I. Kendall, B.S., Ph.D., Dr. P.H. Professor of Bacteriology in the Northwestern University Medical School, Chicago, Illinois. Second ed., thoroughly revised. Illustrated with 99 engravings and 8 plates. Philadelphia and New York: Lea & Febiger, 1921. 680 pp. Price, \$6.00.

The second edition of Kendall's Bacteriology is a wonderful compilation of advanced bacteriology. The various subjects are well written and thoroughly up-to-date. Several sections have been practically rewritten.

The chapter on "Morphology" is exceptionally clear and well written. Its outstanding feature is the simplicity of the text. The chapter on "Antigens and Serum Technic" is well written and here again we find a difficult subject well presented in readable form.

The entire book is noteworthy on account of its extensive study of the subject and one wonders how the author can say so much in so few words. The book is a valuable contribution, equally valuable to both the bacteriologist and practitioner.

C. L. K.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

ANIMAL EPIDERMAL EXTRACT ALLERGENS-SQUIBB.—Powders representing the alkali-soluble protein from the hair and epidermis of animals or from the feathers of fowls. Animal Epidermal Extract Allergens-Squibb are employed for the diagnosis of asthma or perennial rhinitis. The patient's susceptibility may be tested in the same manner as that employed for pollen extracts. They are not intended for treatment. The following allergens have been accepted: Burro Dander Allergen-Squibb, Burro Hair Allergen-Squibb, Cat Dander Allergen-Squibb, Cat Hair Allergen-Squibb, Chicken Feathers Allergen-Squibb, Cow Dander Allergen-Squibb, Cow Hair Allergen-Squibb, Dog Dander Allergen-Squibb, Dog Hair Allergen-Squibb, Duck Feathers Allergen-Squibb, Goose Feathers Allergen-Squibb, Horse Dander Allergen-Squibb, Horse Hair Allergen-Squibb, Rabbit Dander Allergen-Squibb and Rabbit Hair Allergen-Squibb. E. R. Squibb and Sons, New York (*Jour. A. M. A.*, Feb. 4, 1922, p. 349).

BACTERIAL ALLERGENS-SQUIBB.—Protein extracted from bacterial cells. Bacterial proteins have been used cutaneously for the diagnosis of anaphylaxis to the metabolic products from specific bacteria. Their utility is debatable. The following allergens have been accepted: Bacillus Coli Allergen-Squibb, Bacillus Pertussis Allergen-Squibb, Bacillus Typhosus Allergen-Squibb, Catarrhalis Allergen-Squibb, Gonococcus Allergen-Squibb, Pneumococcus I Allergen-Squibb, Pneumococcus-II Allergen-Squibb, Pneumococcus-III Allergen-Squibb, Pneumococcus-IV Allergen-Squibb, Staphylococcus Albus Allergen-Squibb, Staphylococcus Aureus Allergen-Squibb, Streptococcus Pyogenes Allergen-Squibb, and Streptococcus Viridans Allergen-Squibb. E. R. Squibb and Sons, New York (*Jour. A. M. A.*, Feb. 4, 1922, p. 349).

BUTYN.—Paraminobenzoyl-gammadinormal butylaminopropanol sulphate. It is a local anesthetic proposed as a substitute for cocain, particularly in surface anesthesia, as for the eye, nose and throat. It has the advantage of acting through intact mucosae almost as effectively as cocain. On the normal human eye, a 0.5 per cent. solution of butyn is less effective than a 1 per cent. solution of phenacain, but more efficient than a 1 per cent. solution of cocain or a 1 per cent. solution of eucain. Butyn has been used with success in practically

all operations on the eye and in some operations on the nose and throat. Butyn is supplied in solution and also as Butyn Solution, 2 per cent.; Butyn Tablets, 0.2 gm., and Butyn and Epinephrin Hypodermic Tablets. The Abbott Laboratories, Chicago.

SOLUTION OF POST-PITUITARY-G. W. CARRICK CO.—An extract of the posterior lobe of the pituitary body of cattle, standardized to have the same strength as liquor hypophysis U. S. P. For a discussion of the uses and dosage see New and Nonofficial Remedies under Pituitary Gland and Solution of Hypophysis. Solution of Post-Pituitary is supplied in 1 c.c. ampules. G. W. Carrick Co., New York.

PITUITRIN "O."—An extract of the posterior lobe of the pituitary of cattle, approximately two and one-half times the strength of Solution of Hypophysis U. S. P. For a discussion of the actions and uses see article Pituitary Gland, New and Nonofficial Remedies, 1921, p. 219. Pituitrin "O" is supplied in 0.5 c.c. and 1 c.c. ampules. Parke, Davis and Co., Detroit (*Jour. A. M. A.*, Feb. 11, 1922, p. 431).

ALYPIN.—The hydrochlorid of 2-benzoxyl-2-dimethyl-amino-methyl-1-dimethyl-amino-butane. Alypin is a local anesthetic claimed to be equal to procain, but is not a mydriatic. It is said not to produce disturbance of accommodation and to be less toxic than cocain. But the evidence as to the relative toxicity of alypin and cocain is conflicting. Alypin is used in solutions having about the same strength as solution of cocain hydrochlorid. Winthrop Chemical Co., New York.

NOVARSENOBENZOL-BILLON.—A brand of neoarsphenamine-N. N. R. Marketed in 0.6 gm. and 0.9 gm. ampules. Manufactured under license from Les Etablissements Poulenc Freres, Paris, and the Chemical Foundation, Inc. Powers-Weightman-Rosengarten Co., Philadelphia.

WHOOPING COUGH VACCINE-SHERMAN.—Pertussis bacillus vaccine (see New and Nonofficial Remedies, 1921, p. 303) marketed in 10 c.c. vials. G. H. Sherman, Detroit.

MIXED TYPHOID VACCINE-SHERMAN.—A typhoid vaccine (see New and Nonofficial Remedies, 1921, p. 310) marketed in 10 c.c. vials, each cubic centimeter containing 1,000 million killed typhoid bacilli and 500 million each of paratyphoid bacilli A and B. G. H. Sherman, Detroit.

ACNE STAPHYLOCOCCUS VACCINE-SHERMAN.—A mixed vaccine (see New and Nonofficial Remedies, 1921, p. 314) marketed in 10 c.c. vials, each cubic centimeter containing 40 million killed acne bacilli and 1,000 million killed staphylococcus albus. G. H. Sherman, Detroit.

BACILLUS COLI ANTIGEN (No. 50)-PERSSON.—A colon bacillus vaccine (see New and Nonofficial Remedies, 1921, p. 299) marketed in 20 c.c. vials, each cubic centimeter containing 1,000 million killed colon bacteria. Persson Laboratories, Mount Clemens, Mich.

FURUNCULOSIS VACCINE MIXED (No. 37)-PERSSON.—A staphylococcus vaccine (see New and Nonofficial Remedies, 1921, p. 306) marketed in 20 c.c. vials, each cubic centimeter containing 2,000 million killed staphylococcus aureus and 2,000 million killed staphylococcus albus. Persson Laboratories, Mount Clemens, Mich.

STAPHYLOCOCCUS AUREUS ANTIGEN (No. 49)-PERSSON.—A staphylococcus vaccine (see New and Nonofficial Remedies, 1921, p. 306) marketed in 20 c.c. vials, each cubic centimeter containing 3,000 million killed staphylococcus aureus. Persson Laboratories, Mount Clemens, Mich.

GNOCOCCUS ANTIGEN (No. 47)-PERSSON.—A gonococcus vaccine (see New and Nonofficial Remedies, 1921, p. 300) marketed in 20 c.c. vials, each cubic

centimeter containing 3,000 million killed gonococci. Persson Laboratories, Mount Clemens, Mich.

STREPTOCOCCUS ANTIGEN (No. 48)-PERSSON.—A streptococcus vaccine (see New and Nonofficial Remedies, 1921, p. 309) marketed in 20 c.c. vials, each cubic centimeter containing 1,000 million killed streptococci. Persson Laboratories, Mount Clemens, Mich.

PNEUMONIA VACCINE (No. 36)-PERSSON.—A pneumococcus vaccine (see New and Nonofficial Remedies, 1921, p. 304) marketed in 30 c.c. vials, each cubic centimeter containing 8,000 killed pneumococci Types I, II, III and Group IV in equal proportions. Persson Laboratories, Mount Clemens, Mich. (*Jour. A. M. A.*, Feb. 25, 1922, p. 581).

PROPAGANDA FOR REFORM

BUTYN, A NEW SYNTHETIC LOCAL ANESTHETIC.—A committee of the A. M. A. Section on Ophthalmology reports to the Council on Pharmacy and Chemistry on the clinical use of butyn in operations on the eye, nose and throat. The committee finds butyn preferable to cocain as an anesthetic in operation on the eye. One member of the committee also reports favorably on its use in operations on the nose and throat. As a result of the clinical and experimental use of butyn, the committee arrives at the following conclusions: 1. It is more powerful than cocain, a smaller quantity being required. 2. It acts more rapidly than cocain. 3. Its action is more prolonged than that of cocain. 4. According to our experience to date, butyn in the quantity required is less toxic than cocain. 5. It produces no drying effect on tissues. 6. It produces no change in the size of the pupil. 7. It has no ischemic effect and therefore causes no shrinking of tissues. 8. It can be boiled without impairing its anesthetic efficiency (*Jour. A. M. A.*, Feb. 4, 1922, p. 345).

WILLARD EALON OGDEN, SPECIALIST IN PROCTOLOGY.—Dr. Willard E. Ogden, Chicago, claims to be a specialist in proctology, author of "Improved Method of Treating Rectal Diseases," to have been associated with the leading proctologists of America, and to have developed a method of office treatment which is not taught by any other practitioner. He offers to instruct physicians in his methods. In 1914 Ogden advertised in Chicago newspapers to cure piles. In 1921 Ogden had a copyrighted mail-order course of the treatment of rectal diseases by improved methods. Careful search fails to disclose that Dr. Willard E. Ogden has ever distinguished himself in the practice of specialties in which he now wishes to instruct physicians, that he has never published a paper on any phase of medicine or surgery, or that he has been associated with the leading proctologists of America (*Jour. A. M. A.*, Feb. 4, 1922, p. 368).

MERCURIC CACODYLATE.—As cacodylates have been found practically worthless in the treatment of syphilis, mercuric cacodylate must be considered as merely an administration form of mercury. It contains but one-half as much mercury as mercuric salicylate. The two preparations cannot be compared with each other as to local or general action for the reason that the cacodylate is soluble while the salicylate is practically insoluble. The cacodylate has to be administered daily to maintain adequate action. Mercuric salicylate is a favorite drug because of the argument that, being insoluble, it forms a depot of mercury in the tissues so that a week's dose may be administered at one time. To keep the patient under as continuous mercurization as would be secured by the ordinary dose of 0.10 gm. of mercuric salicylate given once a week, six doses of 0.04 gm. of cacodylate would have to be given: in other words, a daily dose excepting Sunday. The pain and induration induced by mer-

curic salicylate is the price the patient must pay for the convenience of weekly administration (*Jour. A. M. A.*, Feb. 11, 1922, p. 452).

STYPTYSATE NOT ADMITTED TO N. N. R.—Styptysate, according to the advertising of Ernst Bischoff Co., Inc., is "obtained by dialysis from Bursa Pastoris (Sheppard's [sic] purse)." It is claimed to be "the Remedy for Hemorrhages," to be "superior to Ergot and Hydrastis," "of particular advantage in Menorrhagia and Metorrhagia" and to have been "found of great value in vesicle hemorrhages and hemorrhages from mucous membranes in general." According to the label, Styptysate is "made in Germany" but the name of the German manufacturer is not given. According to German publications, a proprietary called Styptysate and made from shepherd's purse—a common weed—was used in Germany as a substitute for ergot when this drug was not obtainable. On the assumption that the product discussed in German publications is the Styptysate marketed in the U. S., the best that can be said for it is that, during a shortage of ergot, it was used in place of that established drug. The Council on Pharmacy and Chemistry reports that Styptysate (Ernst Bischoff and Co., Inc.) is inadmissible to New and Nonofficial Remedies because its composition is semisecret and indefinite, and there is no evidence that its uniformity and strength is controlled; further, it is inadmissible because the therapeutic claims advanced for it are exaggerated and unwarranted and because there is no evidence that it possesses any advantage over established drugs, such as the biologically standardized fluid extract of ergot or the definite cruet preparations admitted to New and Nonofficial Remedies (*Jour. A. M. A.*, Feb. 11, 1922, p. 450).

IRON THERAPY.—Iron has so long been administered in some form or other in the treatment of anemia that one might well suppose that its function in the regeneration of blood had been clearly determined. This is far from being the case. Last year, Whipple and his associates reported that iron given as Bland's pills had no influence on the rate of blood regeneration in secondary anemia produced in animals. They reported that there is some experimental evidence for the administration of blood in secondary anemia, but state that whole red cells or hemoglobin given by mouth in the form of a dry powder do not appear to influence profoundly the blood regeneration curve. Their experiments show that hemoglobin has a distinct influence on blood regeneration, but not sufficient to warrant its use in uncomplicated secondary anemia in view of the favorable action of meat and other diet factors. Musser has studied the effect of inorganic iron in a type of anemia representing more closely what is seen in clinical medicine. He found that ferrous carbonate failed to produce any alteration of the experimental hemorrhagic anemias. All of the more recent evidence indicates that the iron is of paramount importance in red blood cell regeneration (*Jour. A. M. A.*, Feb. 18, 1922, p. 512).

Urotropin was removed from the list of articles accepted for New and Nonofficial Remedies because Schering and Glatz, Inc., refused to place the U. S. Pharmacopeia name hexamethylenamine (hexamethylenamina) on the label and in its advertising so as to make clear to physicians the identity of the product, and because it was sold under therapeutic claims which the Council held unwarranted. An advertising pamphlet sent to physicians in 1921 contains a number of unwarranted statements; particularly objectionable are the claims made for the use of Urotropin as an antiseptic in body fluids that are alkaline, such as the cerebro-spinal fluid, bile, aqueous humor of the eye, saliva, the excretions caused by middle ear infection and other

excretions of the nasal, bronchial, laryngeal and mucous membranes. The lack of efficacy of hexamethylenamine in alkaline secretions is generally admitted, and the clinical references to the use of hexamethylenamine in the pamphlet are obsolete. In the introduction to the pamphlet, Schering and Glatz state that they are well acquainted with the scientific research work discrediting the efficiency of hexamethylenamine in non-acid media, but that they feel that the accumulated evidence for its efficacy in such conditions should not be "brushed aside." However, the pamphlet is not made up of quotations, but of unqualified statements. With one exception, all reference to the antiseptic properties of the drug in alkaline media are previous to 1913, that is, before the importance of reaction of the medium was fully appreciated. To quote these earlier articles, without regard to the later work which in most eyes discredited them, constitutes in effect an exploitation of this brand of hexamethylenamine under unwarranted therapeutic claims (*Jour. A. M. A.*, Feb. 18, 1922, p. 531).

LIPOIDAL SUBSTANCES (HOROVITZ BIO-CHEMICAL LABORATORIES CO.) NOT ADMITTED.—According to the Horovitz Bio-Chemic Laboratories Co. (A. S. Horovitz, president), Horovitz has discovered or developed a treatment for drug addiction. This is marketed by the Horovitz Bio-Chemic Laboratories Co. as Lipoidal Substances. The treatment consists first, in the withdrawal of the narcotic; second, in free catharsis; and, third, in the intramuscular injection of the preparation. In its request for the admission of Lipoidal Substances to New and Nonofficial Remedies, the Horovitz Bio-Chemic Laboratories Co. informed the Council on Pharmacy and Chemistry that the product contained lipoids of plant origin, vitamins (water-soluble) of plant origin and nonspecific plant proteins. While the communication abounded in generalities, it gave neither the identity nor character of the lipoids, of the vitamins, nor of the nonspecific protein, nor their quantities or the methods for their control. The firm presented no evidence that the injection of Lipoidal Substances produces any effect other than by suggestion. The Council declared Lipoidal Substances inadmissible to New and Nonofficial Remedies because the composition is essentially secret and because the curative claims are unsubstantiated and therefore unwarranted (*Jour. A. M. A.*, Feb. 25, 1922, p. 600).

BIO-CHEMICAL LABORATORIES' PRODUCTS.—The Bio-Chemic Laboratories, Chicago and Los Angeles, send out the following advertising: 1. "Salvarsan and Mercury Without the Needle." In this pamphlet the use of Salv-Absorbs and Merc-Absorbs, preparations for the rectal administration of arsphenamin and mercury, respectively. 2. "Something New in Glandular Therapy—Caplets." This circular declares that "Caplets make possible the preparation of any pluri-glandular combinations in your office. . . . Your office girl can make them up for you." 3. "Why Gland Transplantation?" A circular devoted to "Orch-Absorbs" which is said to be "a preparation of interstitial glands for intra-rectal administration." No preparation of the Bio-Chemic Laboratories has been accepted for New and Nonofficial Remedies. The Council on Pharmacy and Chemistry, however, has published a report on another proprietary form of administering arsphenamin by rectum. This brings out the lack of evidence for the efficacy of this method of arsphenamin administration. The pluriglandular "Caplet" medication is a form of shot-gun therapy that has been the subject of a report of the Council on Pharmacy and Chemistry and has been discussed editorially (*Jour. A. M. A.*, Feb. 25, 1922, p. 603).

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ORIGINAL ARTICLES

ACUTE OSTEOMYELITIS: REGENERATION OF THE ENTIRE SHAFT OF THE HUMERUS

F. G. NIFONG, M.D., F.A.C.S.

COLUMBIA, MO.

The reason for presenting a single case history of osteomyelitis is that some light may be thrown on bone pathology and the regeneration of bone. We have been accustomed to regard bone as an exceedingly complex tissue differing very essentially in its reaction to inflammatory stimulus from other connective tissues. A closer study of bone infection and resulting inflammation will no doubt lead us to conclude that the processes of inflammation and the sequences thereof are practically the same as in other connective tissues. Either the multiple cellular destruction or the death en masse of bone follows the same course as do soft tissues after varying degrees of inflammation. These changes are only slightly modified because of the hard structure and the small difference in the blood circulation.

Bone cells, however, do seem to multiply and regenerate in very different degrees to the stimuli of different infections. Tuberculosis and carcinoma, for instance, produce a very slow destructive process attenuating and rarefying the bone without rebuilding and regenerating. Syphilitic infection, on the other hand, produces a marked stimulus to bone cells causing them to multiply and thicken bone. An acute infection of bone, such as acute osteomyelitis, will cause extensive destruction followed by a most active multiplication of osteoblasts and the quick regeneration of the bone. These facts are curious and are not wholly analogous to soft tissue inflammations from the same infections.

Some recent experimental work by Gallie and Robertson¹ seems to destroy our old no-

tions of the osteogenetic functions of the periosteum. Their conclusions are that the periosteum is solely for the purpose of carrying the blood supply to the bone. It has no osteogenetic function other than supplying nutrition. We may produce sequestration by extensive destruction of the periosteum because of lack of nutrition but periosteum can have no beneficial use in bone transplantation because its blood supply is cut off when moved. They explain that the subperiosteal osteoblasts, the active bone cells on the surface of bone and under the periosteum, are the cells which become active and multiply under inflammatory stimulus to make our new bone. Their experiments bear out the contention that periosteum has no effect in the transplantation of bone, but we cannot minimize its importance in the regeneration of bone even if we must give credit to the activity of the subperiosteal osteoblasts so closely associated with it.

The case we present shows the wonderful capacity provided by nature for the building of new bone after an acute infection. We must in such a case account for our hematogenous infection as we do in any other tissue or organ. Trauma may be an exciting cause with lowered resistance from disease or selective affinity. We have the blood supply through the periosteum and nutrient arteries, the classical picture of inflammation and the varying degrees of destruction. In this case we have an extensive destruction en masse followed by an exhibition of remarkable reconstruction. We have a removal of the sequestrum which was the entire shaft of the humerus. Only the articular surfaces of the ends were left with the periosteum or involucrum which was the periosteum and barely palpable plaques of bone with it. From this we have the complete reformation of the humerus and nothing could demonstrate the importance of the periosteum and its function more clearly than this case. In forty days the X-ray shows only a nebulous shadow but in another forty days a definite shaft line is visible.

1. The Repair of Bone, by W. E. Gallie and D. E. Robertson. The British Journal of Surgery, Vol. 7, No. 26, October, 1919.

We note the greater osteoblastic activity after acute infections such as this acute osteomyelitis with great destruction of bone. May not this follow the law of Nature in her efforts to repair any damage suffered anywhere in the human economy?

It is interesting to note also a question of

therefore arises as to the value of the sequestrum in bone repair. Reasoning by analogy, we should conclude that it is of great value in feeding these new osteoblasts in their work



Fig. 1.

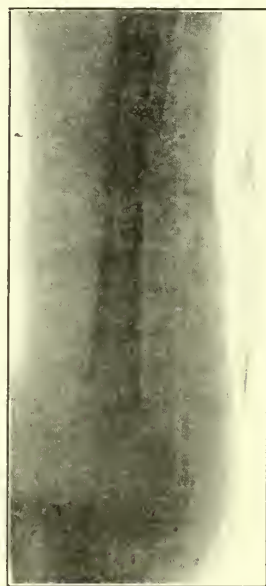


Fig. 2.

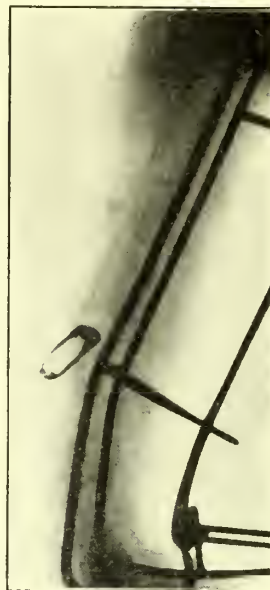


Fig. 3.



Fig. 4.

clinical importance as to the bearing a sequestrum may have on the reparative process. In grafting bone, both autogenous and heterogenous, it is, that the graft is gradually absorbed and new bone laid down by the osteoblasts and every vestige of the graft is ultimately absorbed and replaced by new bone.¹ The grafts appear to act as a nidus and assist in forming the new bone. The question

of making new bone. A clinical point, then, should arise as to the time such sequestrum should be removed. Evidently if the sequestrum is an aid to repair it should not be removed too soon.

There is another matter of some clinical importance to be considered in such cases. Allison and Brooks by experimental and clinical studies demonstrate bone atrophy and

case as this is the time to remove the splint. In the case presented the splint was removed as soon as we felt we dared do it safely, which was about 140 days after operation. Then

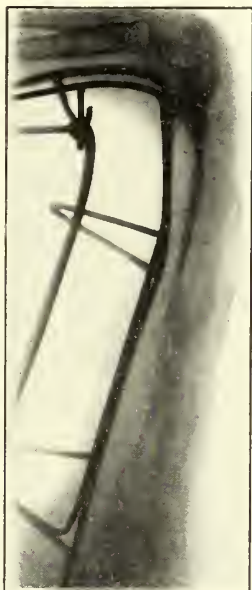


Fig. 5.

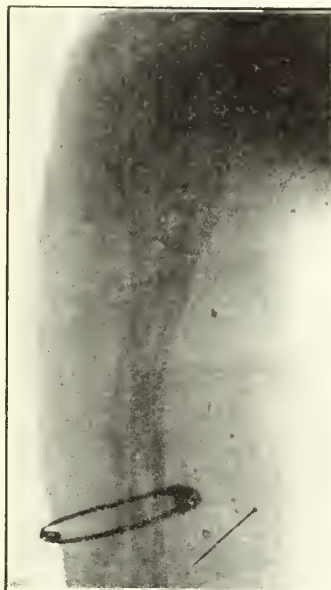


Fig. 7.

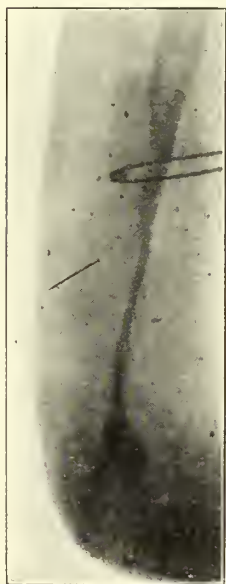


Fig. 6.

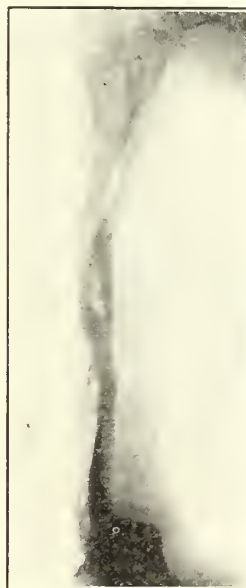


Fig. 8.

rarefaction from non-use.² If functioning assists regeneration, conversely of course the lack of function will retard or inhibit it. A question of importance therefore in such a

passive motion at the elbow and shoulder was begun and no doubt this helped considerably in a fuller reconstruction.

Why do we not have an early diagnosis and expeditious treatment of acute osteomyelitis? It is a sad story and often a tragedy. The

2. Bone Atrophy: An Experimental and Clinical Study of the Changes in Bone Which Result from Non-Use, by Nathaniel Allison and Barney Brooks, *Surgery, Gynecology and Obstetrics*, Vol. 33, No. 3, September, 1921.

attendant so often fails to interpret the significance of the pain. He waits for all the cardinal signs of inflammation.

The Case History.—Reba Gladys Rippetto, age 12 years, white, female, single, school girl, Parker Memorial Hospital, July 15, 1919.

Family History.—A healthy parentage, living brothers and sisters and no hereditary stigmata. She has never had serious illness or injury. She has not begun to menstruate.

The present trouble began seven weeks ago with extremely severe pain in the left arm. No recollection of trauma or any other probable cause could be ascribed. The pain was of the deep throbbing kind involving the entire left arm. There was not much noticeable swelling at first but in five or six days a "pone" or swelling was noticed on the front of the arm near the elbow joint. This swelling continued to enlarge, extending up to the shoulder, and she had much fever all the time. The family doctor was in attendance. At the end of the third week

almost uniformly the entire shaft of the humerus from the head to the elbow articulation.

Operation.—Ether anesthesia. Incision on outer side of biceps through the intermuscular plane long enough to reach the entire shaft of humerus. The periosteal covering was split practically the entire length and the sequestrum, which was the entire shaft, was removed except the articular ends, the cartilages. In this periosteum could be felt plaques of hard material, thin layers of subperiosteal bone. This split periosteum was sutured together. Very free drainage was instituted at both ends and the middle. The arm was left as flabby as any soft tissue, for the periosteal plaques were not enough as yet to make any stiffness whatever. The arm was placed in an improvised cradle made of fence wire fashioned in triangle form to permit ambulation and easy dressing. From this time on begins the long siege of dressings and after-care in the effort to increase her nutrition and capacity for repair. She responded gradually and finally satisfactorily. A series of X-ray pictures will indicate as graphically as anything could the final and most gratifying result.

Plates dated August 23, 1919, being 40 days after operation, show some shadowy nebulous formation not promising as yet to make a humerus.

Plate dated October 1, 1919, shows more definitely the lower articular end and the thin line of bone running toward the shoulder joint. This is 78 days after operation.

Plate dated November 4, 1919, shows definite bone formation and a distinct shaft. This picture is taken 109 days after operation.

Plates dated December 4, 1919, 30 days later, and 139 days after operation show the formed shaft still more distinctly extending from one articular surface to the other.

Plate dated January 17, 1920, taken 180 days after operation, indicates how much repair and reconstruction may be made in six months.

You will note the absence of the splint in the December plates. The arm had stiffness enough to support itself without fear of breaking if carried in a sling. Passive motions at shoulder and elbow encouraged.

I did not see her again for some months and a note on the case record dated September 1, 1920, shows that the arm was performing good, but not full function. Then we have no further record until June 18, 1921, seventeen months later, and 23 months after operation, when she came and we secured plates and photographs of that date. They severally show the beautifully restored humerus and its articular surfaces, and the photographs will indicate the amount of function secured, which is not far short of normal.

She is now developing into a rather comely young woman of fourteen years, weighing 98 pounds, well nourished and healthy. The arms show a large scar area on the front and outer side of biceps. The measurements of the left arm are, acromion to external condyle, 9 inches; to end of oleocranon, 9½ inches. The right arm, acromion to external condyle, 11 inches; to oleocranon, 11½ inches, showing a difference of 2 inches. The right humerus plate is taken as a control.

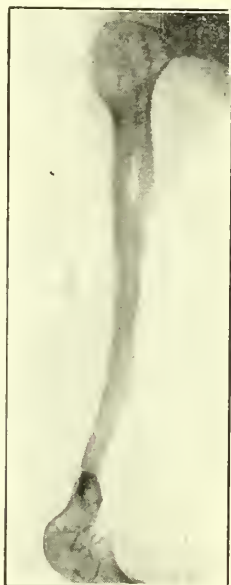
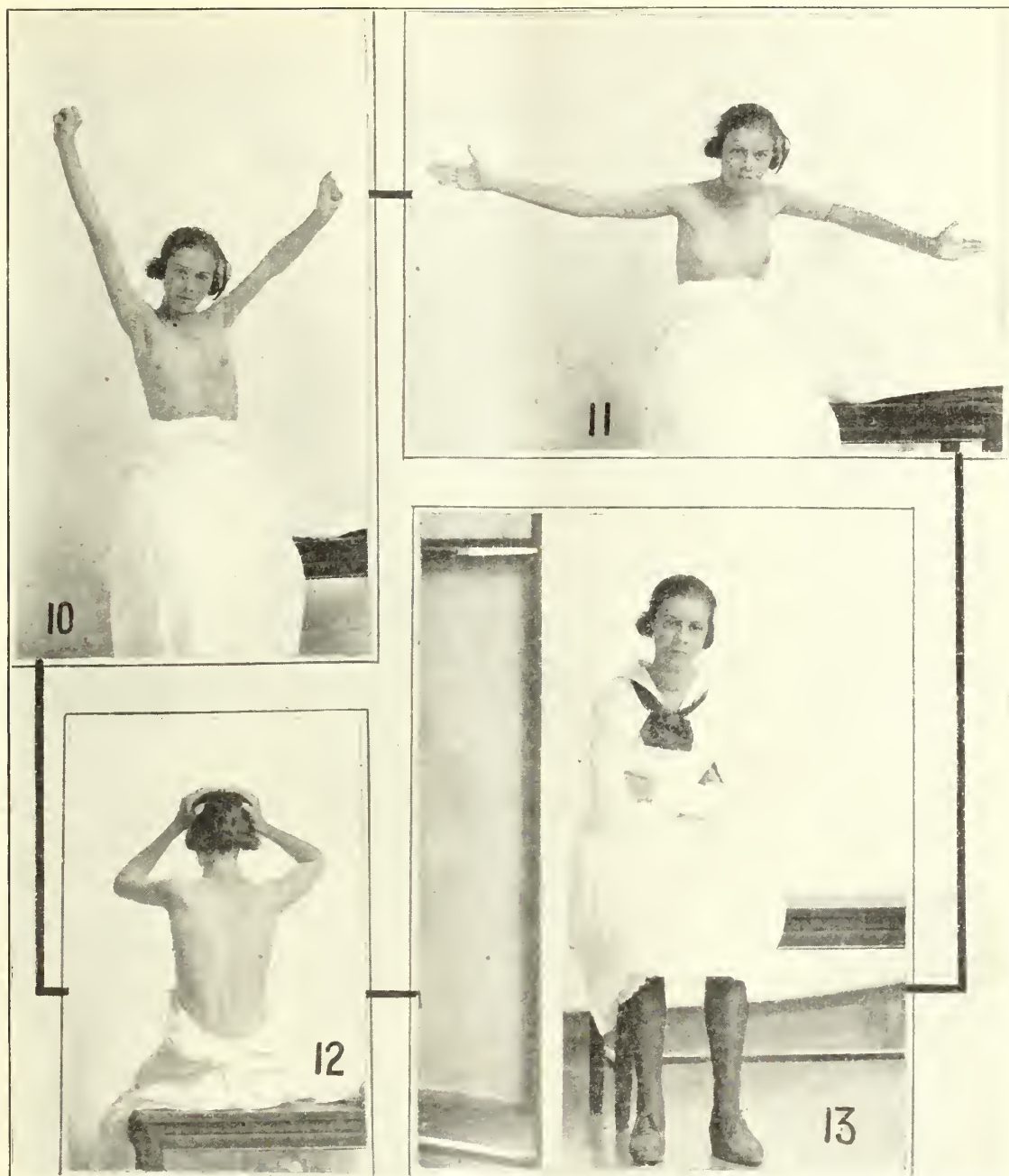


Fig. 9.

the doctor "lanced" the arm and a great quantity of pus escaped. The fever subsided and there has been but little rise of temperature since that time and the patient has become much more comfortable. She has remained at home for four more weeks and just now comes to our attention at the end of seven weeks.

She appears before us an extremely emaciated and pitiful looking little specimen of humanity, showing the deep ravages of the infection suffered. "Skin and bone" expresses the picture of her. Her heart and lungs were normal, as well as the kidneys. The left arm still much swollen, with spastic muscles holding the forearm flexed at right angles. Two sinuses discharging pus were near the insertion of the deltoid muscle. X-ray plates were taken which you will note in pictures one and two on the screen. You will note the extra shadow enveloping



Figs. 10-11-12-13.

**ATYPICAL FORMS OF GRAVES DISEASE
(FORM FRUSE, INTERSTITIAL
GOITER)***

ARTHUR E. HERTZLER, M.D.

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Definition.—I wish to discuss under this caption a mild form of Graves disease which

*Read at the 64th Annual Meeting, St. Joseph, May 24-26, 1921.

is characterized by certain changes in the thyroid gland not generally recognized. This disorder is distinguished clinically by a general nervousness, slight thyroid enlargement, tachycardia, tremor and loss of weight.

Pathology.—The gross picture shows a thyroid gland but slightly enlarged. It is firm and elastic and never bossilated. The section shows a diffuse reddish brown color, finely

punctiform, but cysts and translucent colloid areas cannot be seen. The slide shows a marked dominance of the interstitial cells with little or no increase of the acini or colloid contents. Often indeed the colloid contents have disappeared for considerable areas and the acinal cells are compressed and atrophied. Under low power these glands resemble those of infants or young children. In some cases there are the usual changes characteristic of Graves disease associated with the interstitial changes above noted. In these cases the symptoms are more complicated and one may be justified in saying that the patient is suffering from a "polyglandular disease"—all taking place within the thyroid gland.

Symptomatology.—These patients usually come complaining of indefinite disturbances, nervousness, weakness, sleeplessness, palpitation and usually some loss of weight. In addition they usually complain of menstrual disorders, generally scantiness of flow and cramps during the first day.

The physical examination shows a pulse around 110, of soft and full quality. The blood pressure is usually low, from 100 to 110. The blood count is usually slightly below normal, about four to six thousand leucocytes of which but 3 to 8 per cent. are small nuclears. The apex beat is somewhat diffuse, somewhat heaving, but there is no increase of the area of heart dullness. The neck vessels do not show pulsation to inspection. The thyroid gland is usually about double the normal size, firm and somewhat sensitive to the touch, but is never pulsating. The basal metabolism is not increased though there is some loss of weight, usually not amounting to more than ten or twenty pounds, however.

Diagnosis.—This condition must be differentiated from nervousness, beginning tuberculosis and menstrual disorders.

Unless signs of thyroid disturbances are looked for the complaints may be regarded as neuropathic in origin, whatever that may mean. It is only by systematic search for the signs of thyroid disturbance that a distinction can be made. The tachycardia, tremor, loss of weight with the slightly enlarged, sensitive thyroid is sufficient to give a probable diagnosis. The Goetsch test often gives confirmatory evidence.

It seems possible that nervous states so often observed may be dependent upon thyroid disturbances when no diagnosis of thyroid involvement can be made. At any rate I have frequently observed young women who were nervous without evident cause but who in after years developed the typical signs above referred to. Likewise after the lapse of some years the thyroid symptoms disap-

pear and they return again to their previous nervous state.

The differentiation of this type of goiter from beginning tuberculosis often offers the greatest difficulties. The rapid pulse and slight loss in weight is present in both. A rise of temperature speaks distinctly in favor of tuberculosis. The pulse rate in tuberculosis is higher in the afternoon, when the fever is at the maximum, while in goiter the rate is often most rapid in the morning. The presence of tremor speaks for goiter. The character of the pulse may be much the same in both but there is greater variation from month to month in tuberculosis while in goiter the rate may remain nearly constant for months or even years. The enlargement of the thyroid may be very slight in goiter and some thyroid enlargement may be present in any active infection. If the lungs are frequently examined moist rales will be discovered at some time. Tuberculosis of other organs may be present, notably of the kidneys or the tubes.

Many of the patients come complaining only of menstrual disorders. Usually they relate that their periods did not begin until the sixteenth or eighteenth year; that they have always had pain and that the flow has always been slight. They complain that the periods exhaust them and that they do not regain strength from one period to the next. In such cases one often finds the symptoms characteristic of the form fruste. This association of menstrual disorders and this type of goiter is so constant that it suggests that these two processes have some interrelation. The ovaries in these cases are small, the surface wrinkles and there is a paucity of Graffian follicles. The uterus likewise is often small, the cervix conical and the os pin point in size. In fact, this type of goiter is seldom if ever seen in women with wholly normal pelvic organs.

As a working hypothesis I have been disposed to look on these patients as primarily ovarian hypoplasias with secondary thyroid changes. This suggestion is strengthened by the fact that castrated women present many of the symptoms of this type of goiter. This is particularly true of the slowly castrated women now so commonly due to radium. The patient herself may not suspect any interrelation and inquiry must be made as to any such treatment.

Treatment.—These patients do best with rest and nerve sedatives, notably bromides. Usually after months or years they return to the status quo ante—that is, that of a nervous woman.

Thyroidectomy in my experience has been disappointing. It is true the patients improve

for a time but after months or years the old symptoms return and reoperation does not improve the condition. If one considers the life history of the disease he cannot be enthusiastic about any treatment. I tried for some years to cure the goiter by treatment of the pelvic organs. Aside from learning much of the pelvic pathology associated with these conditions the results were unsatisfactory.

CONCLUSIONS

1. There is a state in which the patient presents mild thyrotoxic symptoms associated with general neuropathic symptoms and menstrual disturbances.
2. That these patients show an increase in the interstitial cells of the thyroid gland and an aplasia of the ovaries.
3. That operations on the thyroid glands give but temporary results and that operation on the pelvic organs is worse than useless.

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THE CLINICAL AND CHEMICAL DIAGNOSIS OF GASTRIC ULCER*

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ST. LOUIS

Statistics, in regard to the frequency of gastric ulcer, are almost valueless, but autopsy findings would indicate that the condition occurs in many individuals who during life have never apparently suffered from symptoms of gastric disease. This may be explained in some instances, no doubt, by the situation of the ulcer in the stomach, and in others by individual differences in reaction to acute and chronic diseases. For example, one individual with but little disease may present clinically the most complicated symptom complex, while in another the presence of gastric ulcer of apparently long standing may be first surmised by hemorrhage, perforation or symptoms of pyloric obstruction. It is, however, probable that in the majority of persons who have ulcer of the stomach there are at some time during its course symptoms which, if carefully analyzed, are nearly sufficient in themselves to determine the clinical diagnosis.

Active peptic ulcer of the stomach is probably more frequent between the ages of 20 and 40 years, although it may occur in the very young or very old subjects. Many theories as to the cause of peptic ulcers have been advanced, none of which are entirely satisfactory. Virchow emphasized the role

played by the blood vessels, thrombosis and embolism. A more recent theory is that of infection based mainly upon the work of Rosenow¹ who cultivated streptococci from excised ulcer tissue and by injecting these bacteria into animals succeeded in producing ulcers of the stomach in a high percentage of his experiments. Rosenow has also shown that the bacteria cultivated from the ulcer may be identical with those cultivated from the abscess around the root of a tooth. Ulcers of the peculiar type found in the stomach may occur in the duodenum, in the first part of the jejunum, and near the stoma of a gastro-enterostomy. The one common feature of these three situations of ulcer is the presence of gastric juice. The acid concentration of the gastric juice during digestion is normally higher than that in which any other living tissues of the body, except the normal gastric mucosa, can exist. This peculiar resistance of the mucosa is probably due to some intrinsic property of a specialized cell.

Some interesting observations were made by George Smith² concerning experimental ulcers of the stomach of cats. He observed that bile in the presence of an excess of .5 per cent. hydrochloric acid usually produced a definite injury to the gastric mucous membrane, whereas bile or .5 per cent. hydrochloric acid introduced alone into the stomach was without apparent harmful effect. He also noted that ulcers were produced more readily when the bile and the hydrochloric acid were introduced between the third and fifth hours after a meal. However interesting these experiments, there is considerable evidence to show that bile may at times be present in the stomach under normal conditions.³ The studies of Rehfuess⁴ concerning the interdigestive phase of gastric secretion should be further studied in relation to Smith's observations.

It is known that the resistance of the gastric mucosa to the digestive action of the gastric juice is likely to be lowered by the action of certain toxins. The best known are of bacterial origin and according to Hurst⁵ the two most important sources of these toxins are from infections about the teeth and the appendix. The association of chronic appendicitis with both gastric and duodenal ulcers is often noted clinically, and the healing of a demonstrable gastric ulcer may at times follow the removal of a diseased appendix. However, it does not seem logical that infection is sufficient in itself to explain the primary cause of gastric ulcer. The same may be said regarding the hyperacidity theory, since both conditions have been known to exist in individuals over a long period of time without producing clinical evidence of gastric diseases.

*Read before the St. Louis Medical Society, November 22, 1921.

The older writers⁶ mentioned anemia and chlorosis as predisposing to gastric ulcer, particularly in women and in association with menstrual disorders. According to Eppiner⁷ disorders due to adrenal insufficiency usually are vagotonic in nature, predisposing to hypersecretion and that to ulcer. According to Hernando in adrenal insufficiency there may occur an excess of free hydrochloric acid, an important factor in the pathology of ulcer; also that in adrenal insufficiency infections are more frequent, and he mentions the work of Rosenow who attaches so great an importance to infection in the pathology of ulcer. Hernando believes that by admitting adrenal insufficiency as a predisposing condition to gastric ulceration we make it easier to explain several phenomena, such as the causative influence of emotion and fatigue since the former augments and the latter uses up circulating adrenalin. In conjunction with the above should be mentioned the work of Rogers⁸ who has shown experimentally that thyroid increases and suprarenal decreases the flow of gastric juice. Whether occupation may play a primary role in the causation of gastric ulcer is questionable. Ewald mentioned its frequency in female servants, especially in cooks. Osler believed it to be relatively more common in the lower classes. Certain families seem to be more susceptible than others, but the exact condition or conditions that make one individual more liable to gastric ulcer, another to duodenal ulcer, and prevents the majority of individuals from having either, is yet an unsolved problem.

DIAGNOSIS

The diagnosis of gastric ulcer can usually be made from a carefully taken and analyzed history of the symptoms, confirmed by the results of the laboratory, X-ray and special tests, although a failure after the use of all these methods of examination is but too often demonstrable in the operating room and at autopsy. We have been so much given to depend upon short cuts in medicine that in some localities the use of the X-ray is assigned the position of prime importance in the diagnosis of the diseases of the stomach. It is not my purpose to belittle the value of this important method of examination, which affords much information that cannot be obtained in any other way, but it does seem to be well worth while to open up discussion as to the relative merits of other clinical means of diagnosis at our disposal. To be sure, the history may be difficult to interpret, the physical signs uncertain and the chemical findings may leave us more than ever in doubt, and even a surgical exploration by a competent surgeon may frequently fail to elucidate the diagnosis.

However, this is the exception and not the rule. Our means of diagnosis, taking them in order of their usual application, are:

1. A general medical examination with special attention to infections (especially syphilis and tuberculosis), endocrine disturbances and habits of living.
2. A study of subjective symptoms and physical signs.
3. Laboratory and special tests.
4. X-ray (fluoroscopic and plates).
5. Surgical exploration.

STUDY OF SUBJECTIVE SYMPTOMS AND PHYSICAL SIGNS

The "story" as told by the patient may in many instances be the most conclusive bit of evidence in favor of the diagnosis of gastric ulcer. To the experienced clinician it may even outweigh the results of all other examinations. It is often the most important single procedure in arriving at a diagnosis of gastric disease. In a typical case of gastric or duodenal ulcer there are certain symptom-groups ordinarily present that may be of considerable diagnostic importance: the history of chronicity and periodicity of symptoms with perhaps seasonal variations; paroxysmal epigastralgia, which usually bears a definite relation to meals; perhaps vomiting; gastric hemorrhage and tarry stools. The first symptoms of gastric ulcer are seldom sufficient to bring a patient to his physician. So at the time of his first visit there will often be found a history of so-called "indigestion" or "hyperacidity" over a period of time, months or perhaps years. These symptoms have a tendency to appear in "crops" and are often more prolonged and severe in the spring and autumn months. The patient may have intervals comparatively free from discomfort for months to years. He often associates the onset of symptoms with an indiscretion in diet, worry, mental or physical overwork. A constant and important symptom is that of pain. The pain of ulcer is variable in character, but as a rule is located in the epigastrium. If typical it bears a definite relation to food, occurring at the height of digestion in the majority of instances and its time of appearance being dependent upon the size and composition of the meal as well as the situation of the ulcer in the stomach.

The pain of prepyloric ulcer often begins from 2 to 4 hours after a meal of moderate size, while it may appear almost immediately after eating when the ulcer is situated near the cardia. It may be described by the patient as burning, scalding or boring in character and is frequently relieved by food, alkalies, vomiting and occasionally by change of posture. Vomiting as a symptom of gas-

tric ulcer is present in about 50 per cent. of the cases, being more common in gastric than in duodenal ulcer and if present it frequently affords relief of symptoms and for that reason it is sometimes induced by the patient. The vomiting of blood is not a common symptom of ulcer and probably occurs in less than 10 per cent. of the cases.

PHYSICAL SIGNS

Localized tenderness upon pressure is frequently present in the epigastrium in gastric ulcer, especially during the gastric distress, but may disappear with the relief of these symptoms. Penetrating ulcer with a localized peritonitis may produce a persistent circumscribed tenderness the location of which often corresponds precisely to the situation of the ulcer as shown by X-ray or an operation. There may be present a hyperesthesia of the skin corresponding to the same spinal cord level. Visible gastric peristalsis ordinarily means pyloric obstruction, which may be associated with ulcer at the pylorus or duodenum.

LABORATORY AND SPECIAL TESTS

Valuable information may at times be obtained by laboratory procedures other than the X-ray. In suspected gastric disease an examination of equal importance to the history and X-ray is a careful study of the fasting stomach contents. In preparation for this examination the patient is instructed to take, besides his regular evening meal, some easily recognizable food, as raisins or spinach, and further instructed to take no other food or drink until after the examination the following morning, ten to twelve hours later. A normally functioning stomach should completely empty itself of all food during this period and by aspiration there should be obtained less than 60 c.c. of a colorless or slightly bile-stained fluid; free hydrochloric acid may be present or absent in a very small amount with a total acidity of less than 30 in terms of tenth normal sodium hydroxid. There should be no evidence of food stasis, blood, pus (unless swallowed), lactic acid, sarcinae, or Oppler-Boas bacilli. If more than 100 c.c. of the contents are obtained after a ten-hour fasting period, we are dealing either with retention or hypersecretion, both of which may be associated with gastric ulcer. Hypersecretion, however, is more often of functional origin while retention is practically always due to organic trouble. In hypersecretion alone we do not find evidence of motor insufficiency and therefore the stomach should empty itself of all food during the fast period. If there is motor insufficiency with resulting retention the most frequent cause is pyloric stenosis.

When the retention is due to pyloric stenosis the clinical nature of the obstruction may at times be surmised by the character of the fasting contents. When due to ulcer of the pylorus or duodenum with the resulting edema, swelling and perhaps cicatrix formation, the free hydrochloric acid is usually high in proportion to the total acidity. For example, a free hydrochloric acid of 70 or 80 with a total acidity of 100 is not uncommon and if this retention has existed for 48 hours or longer, sarcina may be present. It should be remembered that this laboratory-complex is more often found in the pyloric stenosis of a benign character but is not pathognomonic and may also be found in early malignancy of the stomach. If the retention is due to a well-advanced malignancy, the free hydrochloric acid will ordinarily be relatively low as compared to the high total acidity, due to the large amount of organic acids present (lactic, butyric, etc.) and the diminished function of the acid secreting cells (sarcinae as a rule are absent as they do not grow well in the presence of organic acids). An Oppler-Boas type of lactic acid bacillus may be present in large numbers as this organism appears to flourish best in the presence of gastric stasis, a low free hydrochloric acid concentration and the presence of blood serum. The Oppler-Boas type of lactic acid bacilli in large numbers are probably never found in uncomplicated ulcer, but unfortunately are a late sign of gastric cancer. The finding of coffee ground colored contents is important as suggestive of either ulcer or cancer, but occult or fresh blood in the fasting contents must be interpreted with extreme caution. The absence of occult blood in the fasting contents does not rule out a bleeding ulcer, especially if the ulcer is situated near the pylorus.

From gastric analysis after a test meal we wish to ascertain, under given conditions, the gastric response to a definite food stimulus as measured by the amount of the contents recovered, the degree of chymification and the acidity of the contents. In the interpretation of gastric acidity as determined by clinical methods it should be borne in mind that the role of secretion is but one of the many factors determining this acidity, gastric motility and the alkalinizing mechanism being of equal importance, and one or all of these factors may be influenced by intrinsic or extrinsic conditions. The results of gastric analyses are also very dependent upon the clinical procedures used; whether a mixture of the gastric contents or a portion from different stomach levels, as we should never presume before examination that the gastric contents will be a uniform mixture after a test meal.¹⁰

From a study of 800 consecutive gastric an-

alyses using the Dock test meal (one shredded wheat biscuit and 400 c.c. of water) in patients presenting themselves at the medical clinic for various digestive complaints, 27 per cent. of a group of 300, by the Rehfuß fractional method, showed hyperacidity (over 70 in terms of tenth normal sodium hydroxid) at some point during the two-hour examination. In a second group of 100 by a procedure where different portions of the gastric contents were examined separately at 45 minutes after a test meal,⁹ 33 per cent. showed hyperacidity, while in the third group of 400 by the old or one-hour method only 13 per cent. showed hyperacidity. In Sippey's¹⁰ series of ulcer patients, 50 per cent. belonged to the hyperacidity group, 40 per cent. were normal and 10 per cent. showed hypoacidity.

It is to be regretted that our information concerning the gastric response of the normal subject under different conditions is so inadequate, but I wish to emphasize that the presence or absence of hyperacidity as determined by clinical procedures is only of secondary importance in the diagnosis of ulcer of the stomach.

In active ulcer the finding of tarry stools or occult blood in the stools is helpful as a part of the diagnostic equation. The examination of the blood is usually of negative value. Polycythemia has been found associated with duodenal ulcer while a secondary anemia is probably more often associated with gastric ulcer and in all anemias of obscure origin an ulcer of the stomach with occult bleeding should be suspected. A Wassermann of the blood should be a routine procedure. The Einhorn string test may at times be helpful in determining the location of a bleeding surface in the stomach or duodenum. Symptoms of gastric ulcer are usually so closely related to diet that by giving the patient certain articles of food, with exercise, we may be able in some instances to make the subjective symptom complex more definite, while on the other hand most uncomplicated gastric ulcers respond quickly to a suitable diet and alkalies.

In conclusion, it is a practical point to remember that pain of gastric origin is in the majority of instances associated with two conditions—ulcer and cancer. According to our present understanding of the subject an ulcer on the gastric side of the pylorus may be a potential cancer. When we have a gastric symptom-complex that does not yield to medical treatment, or symptoms suggesting perforation, or pyloric obstruction; or when we have a suspicion of a secondary carcinoma, or some focus of infection in the abdomen, as an infected gall-bladder, or chronic appendicitis, we are justified in a surgical exploration of

the abdomen for the purpose of an accurate diagnosis.

Lister Bldg.

BIBLIOGRAPHY

1. Rosenow, Edward C.: The Causation of Gastric and Duodenal Ulcer by Streptococci. Collected papers Mayo Clinic, Vol. x, 83, 1918.
2. Smith, George Milton: An Experimental Study of the Relation of Bile to Ulceration of the Mucous Membrane of the Stomach. *Journal of Medical Research*, Vol. 25, No. 2, pp. 147-183, May, 1914.
3. Boldireff: *Centralbl. f. Physiol.*, xviii, p. 457, 1904.
4. Rehfuß, M. E., and Hawk, Philip B.: Gastric Analysis; Interdigestive Phase or the Principles Governing the Phenomena of the Fasting Stomach. *Journal American Medical Association*, pp. 76-564, February 26, 1921.
5. Hurst, Arthur F.: New Views of the Pathology. Diagnosis and Treatment of Gastric and Duodenal Ulcer. *British Medical Journal*, No. 3095, p. 559, April 24, 1920.
6. Ewald, C. A.: The Diseases of the Stomach. English Translation of Second German Edition. D. Appleton & Co., New York, pp. 227-229, 1892.
7. Eppinger and Hess: Vagotinic, Nervous and Mental Disease Monograph, Series No. 20, Second Edition. Nervous and Mental Publishing Co., New York, 1917.
8. Rogers, J.: Fatigue Disease Exemplified in Functional Disorders of the Stomach and Thyroid Gland. *Archives of Internal Medicine*, pp. 28 and 498, April, 1919.
9. Gorham, Frank D.: Variations of Acid Concentration in Different Portions of the Gastric Chyme and Its Relation to Clinical Methods of Gastric Analysis. *Archives of Internal Medicine*, Vol. xxviii, pp. 434-440, April, 1921.
10. Sippey, Bertram W.: *Oxford Medicine*, Vol. iii, p. 139. Oxford University Press, New York, 1921.

X-RAY DIAGNOSIS OF GASTRIC ULCER*

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The Roentgen ray as a diagnostic aid in gastrointestinal conditions is of unquestionable value. Prior to its advent clinicians had to rely upon other methods, a great many of which were of little aid.

In this paper I desire to offer some constructive criticism in respect to the X-ray. Anyone, whether he be layman or physician, can within a short time master the operation of an X-ray outfit, but it requires a great deal of experience and a thorough knowledge of anatomy and physiology to correctly interpret the shadows that are seen on a fluoroscopic screen or a roentgenogram. What I mean most specifically is that the roentgenographer must have a good knowledge of the normal before he can correctly interpret the abnormal. I have repeatedly seen patients in whom normal shadows had been interpreted as abnormal ones, and especially has then been the case in interpretations of the duodenum; and I believe mistakes are more frequently made in reading roentgenograms than in reading the shadows as visualized by the fluoroscope. A further criticism is that patients are sent to the roentgenologist by the physician with the request that a picture be made of the stomach and a diagnosis rendered. Only in the plainest cases can this be done, for the reason that the roentgen findings are just one of the cogs in the wheel. The gastrointestinal

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tract, with the exception of a small portion, presents a constantly changing scene. Any one who attempts by a few pictures or screenings to make a correct diagnosis will in the majority of cases be wrong.

After considerable experience I have found in gastric and duodenal lesions, with the exception of a few times, that no abnormality was shown in patients who did not present symptoms that were positively referable to the above-mentioned regions. I have seen patients who have been diagnosed ulcer from the X-ray findings alone, who at operation presented perfectly normal stomachs, and in whom after a painstaking examination was found some other lesion or none at all.

I do want it understood that I would not for one moment belittle the value of an X-ray examination, but I do insist that if we are to keep this splendid adjunct up to its proper standard we must exercise the greatest care in the interpretation of what it tells us. How, then, are we to accomplish this? In the first place it must be thoroughly understood that the X-ray is only an adjunct in our work.

I make it an unvarying rule when a patient presents himself to me to follow a definite line of procedure and to endeavor to make a diagnosis by exclusion, bringing into use every known method that has stood the test. I might well illustrate what I mean by the following:

A patient remarked to me the other day that there must be a great many people who suffered with diseases of the stomach, as he supposed that everyone he saw in my office was so afflicted or they would not be coming to a stomach doctor. I replied to him that only a very small number of those patients really had anything wrong with their stomachs, but that their trouble was in some other part of their anatomy and the stomach was merely the telephone. This is so true that I never make a diagnosis of a gastrointestinal lesion until I have proven that the patient has nothing else wrong. It is, therefore, necessary that we correlate all our findings. Of first importance I consider a carefully taken history, next a complete physical examination, and in this examination I want to refer particularly to the circulatory, respiratory and nervous systems. Following this I take up the laboratory features, consisting of a chemical analysis of the secretions and excretions, and I would like to add here that I have never found the fractional method of gastric analysis to be of any greater aid to me than the older method as there are too many uncertainties attached to it and it has not yet been standardized. I do believe, however, that when that time does come we will be able to look with more favor on fractional analysis.

Next comes the X-ray. It has always been and still is my contention that the fluoroscopic findings are of much greater value than the roentgenogram alone. I know you do not all agree with me on this point.

The first thing is the proper preparation of the patient. Whether they be hospital or ambulatory, they are permitted to have the night before the examination a small meal consisting of so-called hospital soft diet. They are not given anything to clean out the intestinal tract, unless there is a special indication for it, as it is desirous of making the examination without changing the patient's present status. I will confine myself to the conditions affecting the stomach and duodenum. On the following morning, the patient is given, at 5 o'clock, four ounces of barium insoluble sulphate mixed thoroughly in water or butter-milk and made palatable. This makes about an eight-ounce mixture. The patient remains quiet until time to come for the examination, the first one to be five hours after taking the first meal. I now proceed as follows:

The patient is placed behind the fluoroscope in a standing position, looking first to see if there is any barium and approximately how much is in the stomach. If it has left the stomach, at what point is the head of the barium column. If considerable barium is still in the stomach after five hours, I call it retention and in the majority of cases this is abnormal.

Let me add here, however, that normal stomachs are divided into two classes, those that empty slowly and those that empty rapidly. If there is not sufficient barium left in the stomach, I now give the patient another mixture of the same ingredients and with gloved hand proceed to palpate the lower end of the stomach and duodenum, first in the anteroposterior position and then the oblique, as we sometimes detect defects in one position that are not seen in another; we now look for what I term direct signs of ulcer. They consist of a deformed duodenal cap, such as indentation, niche, or a partial filling defect, or an accessory pocket indicative of perforation. Barium passes rapidly through the duodenum and is difficult to visualize. I next place the hand on the lower end of the stomach and press everything upward, noting carefully whether there are any defects in the stomach. If at this time I discover any direct signs of duodenal or gastric ulcer I gave the patient a hypodermic injection of 1-50 grain of atropin and after waiting a sufficient length of time re-examine. If the deformities are still present I can be reasonably sure that we are not dealing with a spastic condition but that there is some real pathology. If it now becomes necessary to study at length what I

have seen on the screen, at least three plates of the region to be studied are made. This is only done when I am not satisfied and desire further observation. During the time the patient is drinking the barium, while being screened, I note carefully the esophagus and the cardiac end of the stomach. The lungs and heart are observed and notations made as to whether further screening is necessary along this line. If none of the direct signs are present I then look for the indirect which while of considerable value cannot compare with the former. These indirect signs consist more particularly of some change in the motility or position of the stomach and are of several gradations. A marked writhing or hyperperistalsis of the lower end of the stomach, with barium passing through, is indicative of some inflammatory change in this region. Chronically inflamed gall-bladders as well as small ulcers frequently produce this condition. A duodenum that is pulled out of position, especially to the right or upward, is also indicative of gall-bladder adhesions. A rapidly emptying stomach is also considered an indication of duodenal ulcer, especially a small one. This ulcer may be, however, on the gastric side of the pylorus and produce the same symptoms and is caused by an irritation due to an inflammation. Do not be misled by the spastic conditions of the stomach as we may see numerous changes in its shape and its motility all of which may be due to extrinsic causes. Repeated observation and the administered use of atropin will usually clear up the situation.

These indirect signs must always be taken for what they are worth and then correlated with the other findings. A great many workers in this line do not consider indirect signs of any value as it is a well-known fact that many conditions may cause them, such as chronic constipation, abnormal appendix, gall-bladder, etc. I always consider them, however, a very valuable clue. I consider the use of the X-ray very important in observing the results of our treatment of ulcer, especially from the medical standpoint. You can readily see in a patient that has been under medical treatment whether or not the X-ray evidence of ulcer still remains, thus affording a check on the progress of the disease.

This subject is so broad that I of course can only consider it in a limited manner. I have attempted, however, to call attention to that which I think is of greatest value from the X-ray standpoint as a diagnostic aid.

In conclusion I wish to say that to the trained observer the direct signs of ulcer can be thoroughly relied upon in about ninety per cent. of the cases.

Lister Building.

FACTORS IN THE PROGNOSIS OF HYPERTENSIVE RENAL AND VASCULAR DISEASE

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Our conception of hypertensive cardiovascular and renal diseases as clinical entities is undergoing a constant revision and adjustment as our knowledge of the various causes of hypertension and associated cardiovascular changes and methods for determining renal functional activity are being perfected. The tendency is to define gradually by a process of elimination these particular disease entities from an increasing number of parallel conditions.

It is the intention of the writer to confine the scope of this paper to a particular consideration of that form of combined involvement of the kidney, heart, and arteries, characterized by insidious onset, mounting blood pressure, contraction of the kidneys, primary or secondary, and hypertrophy of the heart, with or without primary sclerosis of the arteries, referred to in literature as cardio-vascular-renal complex and cardio-renal disease.

DIAGNOSIS

A. *Differentiation between the two types.* Recent medical thought has shown a tendency to distinguish cardio-vascular-renal from cardio-renal disease, the latter complex being ascribed to a disturbance dependent upon an underlying chronic diffuse nephritis with primary contraction of the kidneys, and the former upon a preceding widespread sclerosis of the smaller arterioles of the viscera, with consequent atrophy and contraction, more especially of the kidneys, i. e., the "arterio-capillary sclerosis" of Gull and Sutton,¹ or the "arteriolar sclerotic nephropathy" of Barker.²

The differentiation between these two entities is at present rather an unsettled question, and a combination of the two undoubtedly frequently exists. Allwyn³ and Barker² state that such combined forms of renal atrophy and chronic renal inflammation with degeneration form the most malignant types of chronic renal vascular disease. The fact that the presence of these sclerotic changes in the peripheral arterioles is not necessarily evidenced by changes in the larger superficial and palpable vessels renders the recognition even more complex and the clinical diagnosis more fraught with uncertainty, until further investigation promises more accurate interpretation of our available clinical and laboratory information.

The best analysis is by Barker, who hesi-

tates to attribute any such cardio-vascular changes as due to primary chronic diffuse nephritis in the absence of signs of renal inflammation, such as more persistent and marked albuminuria and casts, occasional red blood cells, greater lack of concentrating ability (from the tubular and Bowman's capsule involvement), greater reduction in dye excretions, and higher retention of nitrogenous waste products. The presence of retinitis is also suggestive of primary renal involvement.

B. *Excluding other causes of hypertension.* Other causes of hypertension to be considered and excluded in determining the type of case are:

1. Focal or general infection, subacute or chronic intoxication, and metabolic diseases which frequently have a very decided effect on arterial tension, such as plumbism, syphilis, gout, and diabetes.

2. Endocrinous hypertension⁴ cases which show a definite syndrome of a demonstrable endocrinous disturbance, especially thyroid, pituitary, or ovarian dyscrasies, after a careful exclusion of renal, vascular, and other conditions which might lead to this state of hypertension. The most frequent examples of this type are first, hyperthyroidism (certain types); second, hypothyroidism (occasionally); and, third, the climacterium.

3. Other causes producing arterial hypertension, such as increased viscosity of the blood, pregnancy, eclampsia, premenstrual hypertension, etc.

FACTORS IN THE PROGNOSIS

A. *General.* Having eliminated the foregoing factors, it must be borne in mind that the prognosis of the cardio-vascular-renal complex is altered by the nature of the primary underlying etiology. It is conceded, for instance, that the primary vascular type usually succumbs to cerebral hemorrhage or cardiac failure and does not close the picture with uremia, such as is the more frequent termination of the true primary renal cases. Thus far, in our observation, the vascular types seem to run a longer and more benign course, as a general rule. These are the cases that will occasionally go along for a number of years with a blood pressure around 200 with little or no annoyance or reduced capacity, until the strain on the heart finally breaks its compensation and chronic cardiac insufficiency ensues, or perhaps an unheralded cerebral apoplexy calls our attention to the high pressure from which the individual had been having no great distress or inconvenience.

As a general rule, however, it is true that both of these types, the vascular and the renal, are progressive in character and are dependent upon the same determining factors for

their prognosis. These factors are, (1) the condition of the arterial tree, (2) the functional capacity of the kidneys, and (3) the integrity of the myocardium. In short, the prognosis should be the result of our interpretation of such functional tests of these systems as we have at our disposal.

B. *Three special fundamental factors.*

1. The condition of the arterial tree: The degree of permanent arterial change is best gauged by what Elsworth Smith⁵ terms the "vaso-motor response," that is, the reduction in systolic blood pressure accomplished by treatment. Assuming that the so-called pressor substances, by accumulating in the blood, lead to vaso-constriction of the arterial tree and consequently hypertension, and that this increased peripheral resistance and the continued strain of hypertension produce more and more degenerative arterial changes, i. e., more and more arteriosclerosis, as the course of the disease progresses, we can readily understand that the earlier we see the case the less will the initial tonic contracture have given place to permanent changes such as fibrosis of the intima and atrophy of the media, and the more favorable response we can expect to obtain as the result of our treatment. Therefore we can conclude that the degree of blood pressure reduction obtained is in direct proportion to the benignity of the disease, and hence the favorableness of the prognosis.

Another fact that has appeared to be of considerable prognostic importance during a limited period of observation is that a consistent diastolic reading above 100 offers a less favorable prospect of vaso-motor response to treatment than one reading under this figure. This is consistent with the underlying pathological physiology of the vaso-constriction which, if permanent, interferes with the dilatation of the arterial tree in the receipt of the cardiac systolic output, and limits the elastic recoil of the arterial wall in diastole. This disturbance in the vaso-motor response of the arterial tree becomes progressively increased as sclerosis and calcareous degeneration follow in the wake of the steady strain on the tense vessel wall of hypertension.

2. The functional capacity of the kidneys: This is of signal importance, for here is the ultimate seat of the disturbance, the degree of damage to which determining not only the amount of blood retention products (pressor substances), but the local vascular state to handle the increased amount of blood that must be sent through the damaged kidney to maintain its essential excretory function, as well. Our ability to gauge this function depends upon the following determinations:

a. The urine examination.

- b. Phthalein functional test.
- c. Amount of nitrogenous retention.
- d. Mosenthal test for concentration power.

(a) The urine examination is of course important, the twenty-four hour specimen yielding valuable information as to the amount of actual destruction and inflammation by the quantity of albumin, the number and types of casts, and the presence of blood cells. The gross loss of concentrating power is also determinable.

(b) The phthalein test, as devised by Rowntree and Geraghty,⁶ depends upon the rate of excretion of phenolsulphonephthalein, the interpretation of which, however, presents some difficulties. The kidneys being very complex in nature and the different parts undoubtedly presenting widely different excretory powers, there is much room for selective excretory activity for different parts of their epithelial structure. While it is impossible to accurately determine which part of the kidney function is most involved we can, on the other hand, by this test determine whether the kidneys are in certain respects doing their work well or poorly; that is, determine their total function.

The details of the phthalein test are familiar. One c.c. of a solution containing six mg. of phenolsulphonephthalein is injected intramuscularly. The time of appearance in the urine is noted and the total per cent. excreted in the first two hours following is determined by a colorimeter. The normal kidney excretes 60 to 80 per cent. of the amount during this time. However, just as in blood pressure, a certain allowance must be made for advancing age, there being a slight decrease. It must be understood that the phthalein test is a test of total renal function; beyond indicating the renal function and serving as a measure of its degree, it has no particular diagnostic value. It is not a test of the presence of nephritis, for example.

Rowntree and his associates have shown that a marked diminution of phthalein indicates an unfavorable outcome. It is to be borne in mind, however, that the phthalein test is definitely influenced by the condition of the circulation through the kidneys.

(c) Nitrogenous waste products. As the kidney is an excretory organ, the substances which it excretes are present in part at least in the blood in the form they have in the urine; when their excretion is interfered with it would be expected that they should be found in the blood in increased amount, and this increase would serve as an index of renal insufficiency. Such is the case. More recently, simpler methods have been devised for determining these nitrogenous products in the blood. Folin⁷ especially has done much to de-

velop these methods and has described colorimetric methods for determination of the total NPN, urea, uric acid, creatin, and creatinin—all substances which are increased in the blood whenever a renal lesion exists. Marshall's⁸ urease method of determining blood urea has been particularly helpful in clinical work.

It must be borne in mind, however, that the urea or total NPN, for example, will increase or decrease with variations in protein intake so that this fact must not be lost sight of in interpreting results, and it is usually controlled by taking the patient's blood early in the morning before breakfast after having been on a low protein diet for one or two days. Destruction of body protein is another factor in increases as indicative of serious disease, such as an advanced tuberculosis or carcinoma. In actual practice, we believe that the determination of the NPN by the Folin method is sound, consistent, and practically an index as to the amount of nitrogenous waste retention in the blood from the decreased renal excretion, the normal being considered as 25 to 35 mg. per 100 c.c. of blood.

The ratio between NPN in blood and urine has been expressed by various formulae (Amhard's coefficient and McLean's index) in an effort to give a numerical value to renal function. The relation between the blood and urine is obviously important, in Christian's opinion, but the formulae so far introduced seem too artificial to express this relationship adequately. Folin and Dennis have shown that a general parallelism exists between the amount of non-protein nitrogen in the blood and the ability of the kidney to excrete phthalein. Widál¹⁰ has pointed out that a marked increase in the total non-protein nitrogen in the blood in chronic nephritis has an unfavorable prognostic significance.

(d) Mosenthal test. Another measure of renal efficiency depends upon the adaptability of the kidney to excrete water and solids in relation to the intake of liquid and solid food. If a considerable amount of fluid is given with normal kidneys the amount of urine quickly increases and the amount of total solids as measured by the specific gravity decreases. If, on the other hand, solid food with relatively little fluid content is taken the amount of urine decreases and the specific gravity increases. Thus does the normal kidney adapt itself to variations of diet. Usually in the night period, 400 c.c. or less is excreted, the bulk of urine is excreted during the day. In mild cardiac decompensation with a latent edema, i. e., one that is not demonstrable by actual pitting on pressure, the Mosenthal test yields valuable information, for in this condition there will be found in the day specimen a

high concentration without the usual variation (at least nine points), and the night specimen, during which time of course the patient being at rest and the latent edematous fluid being absorbed and excreted, there will be a high amount of urine with a low specific gravity.

These facts serve as the basis of a very useful test of renal function, usually spoken of as the two-hour renal test, as described by Mosenthal.¹ The patient is given a diet consisting of breakfast of the usual type, a noon meal containing relatively high protein, extractive, and sodium chlorid content, and a quite simple supper, the amount of fluids being carefully measured, so that about 300 c.c. of fluid is given with breakfast, about 750 c.c. with the noon meal with 3.5 grams of salt, and 600 c.c. with the evening meal; 250 c.c. of water is allowed during the evening. A good standard menu to employ would be:

Morning meal: Orange 50 grams, oatmeal 150 grams, and milk 25 c.c., 1 egg 50 grams, toast 20 grams, and butter 5 grams, sugar 10 grams and cream 20 c.c. to be used with 150 c.c. of tea or coffee.

Midday meal: Milk (in soup) 150 c.c., steak 75 grams, potato 100 grams and butter 10 grams, peas 100 grams and butter 10 grams, bread 20 grams, ice cream (ordinary portion), NaCl 3.5 grams (to be used by patient on above food) and water 500 c.c. with meal.

Evening meal: Tomatoes 75 grams and butter 10 grams, lettuce 20 grams with celery 50 grams and olive oil 20 c.c., bread 20 grams, baked apple 100 grams with sugar 20 grams and cream 20 c.c., water 500 c.c. with meal. 250 c.c. water during evening.

The urine is collected in two-hour spaces through the day from 7 a. m. to 9 p. m. and an all-night specimen from 9 p. m. to 7 a. m., thus making seven day and one night specimens. Each portion is measured and its specific gravity taken. The sodium chlorid and nitrogen content may be determined in addition, but is not necessary. However, an estimation of the total chlorid output is quite desirable.

The normal kidney under these conditions will show a very considerable variation in the amount of specific gravity of urine from period to period. With renal damage these variations decrease, tending towards fixation in both amount and specific gravity, indicative of a delayed or decreased excretion. The delay in promptness of excretion causes the night urine to increase beyond the normal amount of 400 c.c. This so-called two-hour test is decidedly serviceable as indicating the lesser degrees of renal disturbance and we often get changes indicated by this test when other tests indicate almost no departure from the normal.

Friedewald has further simplified this test, in his ambulatory cases, by having the patient bring in his two-hour and all-night specimens

on his usual normal diet. He believes it more important to find out what the kidneys are doing with the patient's normal intake than on a carefully measured, artificial dietary regime.

3. The integrity of the myocardium: The determination of this factor is of paramount significance as it is here that the extra load must be carried. The heart must furnish the increased pressure necessary to maintain the necessarily increased blood flow through the impaired kidney. Naturally, subjective signs and symptoms of decompensation, or arrhythmia even with compensation, are unfavorable. Heretofore we have depended to a very large extent upon subjective symptoms, as influenced by exertion, as our measure of myocardial function. While these are of great value in forming our judgment as to how well the circulation is being maintained under the ordinary conditions of daily demands of life, they are all complex functions involving cardiac activity, vaso-motor changes, respiration, etc., and in ratio as they are complex they are difficult of evaluation. Such changes are not well suited as values to compare from period to period in the same individual, and are particularly unsuited for comparison between different individuals because of that unmeasurable factor—varying individual susceptibility to change. What is needed is some measure of value which expresses myocardial efficiency under rest and after exercise as a basis of comparison, and various attempts have been made to provide such tests.

Fortunately we have a fairly satisfactory method for determining cardiac reserve capacity, even with an apparently perfectly compensating heart. I refer to Barringer's method of determining myocardial reserve by determination of blood pressure and pulse rate changes after moderate measured exercise.

It has been determined by comparative tests with an ergometer that in stooping from the erect position and back again an adult raises roughly half his weight in foot pounds each time. The minimum number of foot pounds of work necessary for a determination of this cardiac capacity has been determined by Barringer to be about 2000, and would be expressed by an individual of 150 pounds stooping to the floor and erect again about 26 times within 60 seconds. According to Barringer,¹² a delayed or insufficient rise in the blood pressure indicates myocardial insufficiency. This rise should be from 20 to 30 points and should occur within two minutes after the exercise stops. If the pressure three to ten minutes afterwards is lower than it was before beginning the exercise, this amount of work has overtaxed the heart's functional capacity, which should normally be within range of this amount of exercise. We are in the habit

of taking the pressure immediately before exercise and immediately afterwards, three, six, and usually ten minutes later. We expect to find a rise of 20 to 30 points in blood pressure immediately afterwards, a gradual return to normal, or slightly above normal, at the end of six minutes, in a heart with good reserve capacity. Although the values of the heart's capacity as estimated in these determinations are not absolute, the conception they give us of the heart's reserve function does much to establish a rational and consistent relation between clinical findings and underlying circulatory physiology. The test seems by observation thus far to be entirely consistent with the subjective symptoms in these cases.

Another principle that has been used to test the cardiac function consists in observing changes in the heart's size, mainly the changes in the right border produced by holding one's breath, or following exercise, and noting the time required to return to its previous size. This is done by viewing the heart under a fluoroscope.¹³ The electrocardiogram has thrown some light on cardiac function but is of relatively little help as a test of cardiac capacity, according to Christian, although certain changes such as widening and notching of the Q R S complex¹⁴ and inversion of T waves¹⁵ in certain leads, indicate a seriously damaged heart muscle. None of these tests, however, with the exception of Barringer's are very satisfactory as measures of circulatory function, and so far as cardiac capacity is concerned, a careful history of symptoms in relation to exercise, a comprehensive physical examination, together with blood pressure readings, according to Barringer's method, taken together, are our most valuable basis for estimating cardiac efficiency.

RESUME

Given a case of cardio-vascular-renal or primary renal hypertensive disease, the points that should be considered and carefully weighed in the balance of our judgment before rendering an opinion as to the prognosis of the case, the expectancy of life of the individual, the amount of essential curtailment of his daily mental and physical exertion, the relation of treatment especially in regard to dietary, cardiac stimulatory, and eliminative measures, are:

1. Determination, when possible, of the primary factor of the complex—vascular or renal.
2. The amount of permanent fixation of the arterial tree.
3. The functional capacity of the kidneys.
4. The integrity of the myocardium.

University Club Bldg.

BIBLIOGRAPHY

1. Gull and Sutton: Arterio-capillary fibrosis. *Medico-Surgical transactions*, Vol. LV, p. 1872.
2. Barker, L. F.: Cardio-vascular diseases, *Southern Medical Journal*, Vol. X, p. 22, '17.
3. Allwyn, Herman: *American J. Urology*, April, '19.
4. Engelbach, Wm.: Arterial hypertension associated with endocrine dyscrasias, *Jour. A. M. A.*, Vol. LXXIV, p. 1619, 1920.
5. Smith, E. S.: Vasomotor response in cardiac and renal decompensation of hypertensive cardio-vascular disease, *J. Mo. St. Med.*, 16:1, Jan., '19.
6. Rowntree, L. G., and Geraghty, J. T.: *Jour. Abarum. and Exper. Therap.*, 1908-10, 1, 579.
7. Folin, O., and Dennis, W.: *Jour. Biol. Chem.*, 1912, XI, 527; 1913, XIII, 469; 1916, XXVI, 491.
8. Dennis, W.: *Jour. Biol. Chem.*, 1918, XXXV, 513.
9. Folin, O., and Wm. H.: *Jour. Biol. Chem.*, 1919, XXXVIII, 86.
10. Marshall, E. K.: *Jour. Biol. Chem.*, 1913, XV, 487.
11. McLean, D. D., and Deleary, J. J.: *Jour. Biol. Chem.*, 1915, XXXI, 361.
12. Widal, F., and Lemierre, Edgebu. d. inn. *Med. u. Kinderbeilk*, 1909, IV, 523.
13. Mosenthal, H. O.: *Arch. of Int. Med.*, 1918, LVI, 733.
14. Barringer, T. B.: *Arch. of Int. Med.*, 1916, XVII, 363 and 670, 1917, XX, 829.
15. Nicolaie and Zuntz: *Berl. klin. Wchanacher*, 8.4.14, p. 821.
16. Oppenheimer, B. S. and Roetrachild, M. A.: *Proceeds Society Exp. Biol. and Med.*, 1916, XIV, 57, and *Jour. A. M. A.*, 1917, LXIX, p. 429.
17. Lewis: *Mech. of the Heart Beat*, Shaw and Sons, London, 1911, p. 74.

MALARIA CONTROL*

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At the time I received an invitation from your State Health Officer, only a few days ago, to attend this meeting, I was not fully aware of the character of the meeting to be held here and for this reason I did not prepare a paper for the occasion. I did not know just what your most important health problems in Missouri were, and I did not care to take up your time with the academic discussion of malarial fever in case you desired to discuss matters of more immediate importance to the development of your new health program in Missouri.

I am very glad indeed, however, to be with you and to discuss in a general way the subject of "malaria," since I have been in charge of malaria investigations for the Public Health Service during the past two years. In the beginning, I should like to know how many of the health officers present really have a malaria problem within their counties. Will those who have such a problem please raise their hands? (No hands raised.) Apparently none of you present seem to have the problem of malaria to deal with in addition to your other troubles and you are to be congratulated. I understand, however, that the southeastern part of your state is not represented at this meeting. Under the circumstances I do not feel inclined to take up very much of your time with prolonged discussion of malaria.

It was reported a few years ago by an ob-

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server who had studied malaria all over the world that one of the southeastern counties of your state showed a higher malaria incidence than any other county in the United States, and that malaria in this county was just about as bad as could be found anywhere in the tropics. I understand that conditions have changed considerably in southeastern Missouri within the last few years as a result of extensive agricultural drainage. As we all know, major drainage projects of this character ultimately result in malaria reduction, first, by the drying up of favorable mosquito producing areas, and, second, by the improvement of living conditions made possible through reclamation and increased agricultural development. I say that ultimately a reduction in malaria must follow extensive agricultural drainage. This is historically true throughout the United States. It may be, however, that immediately following the installation of an extensive drainage project, there will be an increase in malaria because proper attention has not been given to the principles underlying malaria drainage. Many small collections of water are created in connection with the construction of drainage canals. The biologic relations which may have served to keep mosquito production somewhat in abeyance in the locality are upset, eager settlers flock in and hastily construct primitive homes, and under these conditions it may be that an increase in malaria will result. For this reason the health authorities of the state should be consulted and should be authorized to advise concerning drainage projects in so far as they may affect health conditions. This is particularly true of road construction. The farmers must have good roads if the agricultural development of the state is to be assured, but the health of the community should not be imperiled, as it frequently is in road construction, by the contractor leaving barrow pits, improperly placing culverts and creating numerous mosquito breeding places along these public highways. The health authorities, both state and local, should be consulted in these matters and should have authority to prevent the creation of these menaces to public health.

Many factors enter into malaria control and as Dr. Ravenel has said, in malaria as in other preventable diseases, the first steps toward improvement have been taken through agricultural and commercial activities—a desire for gain rather than for improvement in health conditions. This fact, however, does not justify the health officer in assuming the attitude of leaving the matter in the hands of trade, but he should be ever ready to lend his advice and assistance in furthering the health improvement of the community. With the knowledge recently gained of preventive

medicine and with full-time health organizations functioning in many counties in the South, the county health officer should be a most important factor in controlling malaria, typhoid and other intestinal diseases which have been all too common in the past.

Malaria is responsible for many of the agricultural problems of the Southern states. It is intimately related to the negro problem, to the one-crop (cotton) problem, to the short-term renter, who comes and goes taking all he can get from the land and having no interest in its improvement. Farmers from the North are not willing to come into the South where they must compete with such conditions and expose themselves and their families to malaria infection although the agricultural possibilities are greater. Epidemics of cholera and yellow fever come and go and in a few months business activities are resumed and they are forgotten, but malaria, where it is of serious sanitary importance, hangs over the community always like a blighting cloud. To speak of the annual loss to the South from malaria in terms of \$100,000,000 or more, does not express the entire loss from this disease. The losses from malaria are cumulative and are carried over by the people of the South from year to year "like the old man of the sea." As a result of malaria the South is at least twenty-five years behind other sections of the United States in agricultural development. Such a condition must not be permitted to continue and we public health officials cannot shirk our duty in removing this malaria incubus from our Southland.

We may truthfully say that malaria control in the Southern United States is now well under way. The U. S. Public Health Service, the International Health Board, and the health officials of ten Southern states have undertaken a program of co-operative malaria control, and this program is now being carried out in about 150 small towns from Virginia to Texas. We have successfully demonstrated that malaria can be controlled, principally through drainage and oiling in urban communities at a reasonable per capita cost. And we find no difficulty in securing applications from towns which are willing to finance in great part such malaria control demonstrations. Our difficulty has been to secure sufficient governmental appropriations and personnel in the shape of sanitary engineers competent to superintend these malaria control demonstrations.

The program of malaria control in rural communities on a county-wide basis has not reached the same point in its solution. It has generally been held that malaria drainage in rural communities is prohibitive in cost. Recent figures compiled by Senior Sanitary

Engineer J. A. Le Prince indicate that this may not be the case. Rural malaria control, however, is under investigation and at the present time the Public Health Service is co-operating with the state health authorities in Virginia, North Carolina and Alabama with a view to determining feasible measures which can be applied to malaria control on a county-wide basis. The recent expansion of full-time county health organizations in the South lends itself to the development of this program for rural malaria control and unquestionably where malaria is a serious health problem, a wide awake, full-time county health officer of the new regime will find a way of successfully combating it.

In the program for rural malaria control it is probable that other methods than malaria drainage will be successfully employed. The investigations of Dr. Bass as to the efficacy of adequate quinine treatment in rural malaria control, and those of the Public Health Service co-operating with the state health authorities of Georgia in Mitchell County, Georgia, last year seem to indicate quinin when properly administered, will result in a great reduction in active malaria and, what is more important to us as public health officials, the prevention of malaria carriers. It has also been found that a small top minnow, *Gambusia affinis*, which is common throughout the South, is a great help in controlling mosquito production through feeding on mosquito larvae. This small fish when judiciously employed will no doubt materially assist us in reducing the cost of rural malaria control.

The railroads of the South are becoming interested in the control of malaria along their lines as a protection to the health of their employees and a saving to the railroad. The Cotton Belt Railroad was the first to become interested in malaria control and has been carrying on anti-malaria work for four years under the direction of Mr. H. W. Van Hovenberg. I understand that the road officials are greatly pleased with the results which have been obtained and last year about \$150,000 was spent for malaria control along the lines of this road. In recent conference with the chief engineer of the Missouri Pacific, I was informed that this road was greatly interested in malaria control among its employees and along its lines and would be glad to receive advice and assistance from the health authorities as to how the road could best handle its malaria problem.

Another phase of the campaign for malaria control in the South, which cannot be too greatly emphasized, is that of education in the cause and transmission of malarial fever. Work of this character will unquestionably bear fruit. It may not be seen at once but sooner or later

when the people of any community become fully informed as to the cause of malaria, the losses due to malaria, and the methods to be employed in protecting one's self from the disease, malaria will be placed under control. In connection with all of the demonstrations which are being made in malaria control under our co-operative program, every opportunity is taken to educate the people of the community in these matters—this effort being directed particularly to the school children, and there are reasons for believing that the next generation in the South will more nearly realize the importance of malaria than their fathers did, and because of this knowledge the practical eradication of malaria may not appear an idle dream.

Missouri has not up to the present time been included among the states co-operating with the Public Health Service and the International Health Board in malaria control. Now that you are undertaking an extensive program of health work it seems to be advisable that a malaria survey be made in the southeastern part of your state in order to determine the extent of your malaria problem there and what steps should be taken for its control. I believe I can assure you that the Public Health Service will be pleased to consider rendering you assistance in this matter. If the malaria prevalence in southeastern Missouri is not a serious health problem it should be known and the outside world so advised. If it is a serious health problem, it should be known and steps taken for its correction.

HEADACHES OF NASAL ORIGIN*

C. A. MOORE, M.D.

SPRINGFIELD, MO.

In coming before this Society to present a paper on the subject of headaches of nasal origin, I do so with the full realization of the skepticism entertained by the members of the general medical profession relative to the common occurrence of this distressing symptom.

I imagine that at this time there are those present who are saying: "Headaches are the result of so many conditions, or an important symptom of so many diseases, that there will be a very small percentage of cases that can be classed as nasal headaches after all that are considered to be symptoms of constitutional disorders and those due to eye strain and acute ear diseases are eliminated."

If the ideas expressed in this paper appear to be extreme or exaggerated it is because the conclusions have been so forcibly impressed

*Read before the South-West Medical Society, November 2, 1921.

on my mind in the study of headaches, as they occur in daily practice extending over a period of several years, that the doubt I may have entertained as to this common condition has been removed, to be supplanted by the belief that comes from practical demonstration, including cases in different degrees of pain extending over a period of time from a few hours to several months, in which the headache had been in some cases intermittent, in others continuous.

It has been the accepted theory that if pus did not appear in the nose, as if coming from an ethmoid or frontal sinus, there would not likely be headache produced by any condition in the nasal chamber. Sluder has opposed this belief for a number of years because his clinical experience has demonstrated to him that a very large percentage of recurring, or persistent headaches has no pus, nor even an infected sinus. The condition present most often, is hypertrophy of the middle or superior turbinate. If the headache was more or less persistent and extended over a long period of time there would likely be hyperplasia of the turbinates with thickening of the mucous membrane extending back over the vault of the pharynx to the sphenoid sinus, thereby involving the sphenopalatine ganglion. It has been demonstrated that pressure on the ganglion is almost an invariable source of headache, the pain radiating to any part of the head supplied by these nerves—to the eye and produce a pain similar to iritis, or to the ear when the pain may be diagnosed middle ear abscess.

The turbinates in their composition of erectile tissue, with a large plexus of blood vessels, lymphatics, nerves and connective tissue, constitute one of the most changeable structures in the body. The small amount of resistance to increase of blood that may flow to this structure, for instance, when there is contraction of cutaneous capillaries, causes the turbinates to assume the role of an elastic reservoir. This temporary change of blood pressure is one of the provisions for the preservation of health, but when any organ or tissue of the body has become the object of an excess of this compensatory action, loss of function will ensue. The result of this engorgement in the turbinates is pressure on the nerves with pain as the natural result in the region supplied by nerves thus involved. This engorgement is a condition long recognized as a source of obstruction to breathing, chronic pharyngitis, involvement of the eustachian tube with impaired hearing and abscess in the middle ear. It is very rare, as compared with the large number of cases, to hear the diagnosis, "reflex pain of nasal origin," but the rule is to diagnose the case either sick headache, nervous headache, bilious headache,

hemicrania, sun pain or migraine. There is no argument required to convince any person that we have pain in the head or nose from retention of secretion in a sinus opening into the nose, particularly the frontal sinus. The object of this paper is to try to convey the impression that a large majority of headaches is the result of a local condition in the nose, produced by distension of tissue that may be engorgement of blood vessels, hypertrophy or hyperplasia. In compensatory engorgement the headache would likely subside with the equalization of blood pressure, but in the more advanced conditions—hyperplasia—the headache may be expected to be of longer duration, sometimes continuing for days, weeks or even months. The predisposing cause of this condition may be deflected septum, spurs, ridges, or large spongy turbinates similar to large spongy tonsils, in which the patient has an enlargement of the whole lymphatic system, which is a very prolific source of abnormal turbinates.

The exciting cause may be atmospheric changes, deficient clothing, loss of sleep, or almost any of the constitutional diseases with an elevation of temperature.

It is my opinion that in a large majority of headaches associated with elevation of temperature, pressure and not toxemia is the cause. The headache associated with typhoid, malaria and influenza, in which there is a full, bounding pulse, should suggest a large red turbinate, congested possibly to the extent of hemorrhage. This I mention as an illustration of compensatory engorgement in which the headache may be expected to subside with the reduction of the distended nasal tissue. Each of us has had cause to try the virtue of magnesium sulphate and thus regulate the blood pressure in the turbinates and relieve migraine. This brief description is probably sufficient to give a picture of the turbinates enlarged as the result of an inherited dyscrasia, some local irritation in the nose, or compensatory engorgement. The headache will be in direct ratio to the amount of pressure and the nerve involved, whether distributed to the eye, supra-orbital region, top of the head, ear, postauricular region, or to the occiput. The extent, severity and duration of the pain is no doubt greatly influenced by the involvement of the sphenopalatine ganglion, also known as Meckel's ganglion and nasal ganglion. Situated in the sphenomaxillary fossa this ganglion rarely escapes pressure from extension of inflammation or congestion of the turbinates or tonsils. The ganglion is regarded as belonging to the series of sympathetic nodes and consists of an interlacement of nerve-fibers in which are imbedded numerous stellate sympathetic neurons. When the turbinates are involved to the

extent of reflex manifestations and the nasal series of sympathetic nodes, and consists of an interlacement of nerve fibers in which are ganglion then encroached upon by the thickened mucous membrane thereby pressing it against its bony bed, we can readily see that headache would be the natural result.

The headache from frontal sinus involvement is by no means the result of an accumulation of secretion in the sinus, but may be the condition so clearly described by Sluder in his book in which he classifies 451 cases of vacuum frontal headache that showed no secretion present, the condition found being, to use his words, "the air is partly absorbed in the sinus and the negative pressure makes the walls sensitive." In this condition the radiograph would show a negative finding and the diagnosis as to frontal sinus involvement also negative.

The importance of hyperplasia as a causative factor has not been sufficiently emphasized, as is shown by the yearbook of 1921, where we read: "White thinks that the importance of nasal accessory sinus disease is not yet fully comprehended." The usual opinion is that the seat of trouble may be determined on a casual nasal examination. Pus-polyoid tissue, or caries, was formerly looked for, but now we recognize the importance of hyperplasia—that is, a rarefying osteitis associated with inflammatory swelling and fibrous thickening of the mucous membrane lining the accessory sinuses. This is brought about by long-continued hyperemia. Examination of the nose is negative when the hyperplasia does not involve the middle turbinate.

I do not intend to discredit the pain arising from increased secretion or pus in any sinus, because that is well recognized, but what is desired is to emphasize the thought that there are a great number of headaches from nasal origin where there is congestion, hypertrophy or hyperplasia of the tissues in which there is no pus retained in the cavities opening into the nose.

Clinical demonstration is usually the last argument as to results obtained by treatment, therefore I will report two typical cases that had been treated for migraine.

Miss M. M., aged 20, referred to me August 14, 1909, by a local physician who stated that he had treated her for several months for headache, but for the last four months had failed to give relief. He asked me to fit glasses for her. Examination with the retinoscope and ophthalmoscope revealed practically normal eyes, and there was no hope for relief from glasses. Examination of nose revealed large red turbinates—hypertrophy. Local application of an astringent solution reduced the congestion, relieved the pressure, and headache controlled for first time in four months. This patient needed for permanent relief the removal of some turbinate tis-

sue. This was done and she resumed her school work. No return of headaches to date.

Mr. C. McF., aged 33, came to me July 17, 1920, stating that he had suffered from periodical headaches for several years but for the last three months had been unable to do any work. He had been treated by three reputable physicians for migraine, and had also been treated for three weeks by an osteopath whose diagnosis was not stated. My diagnosis was subacute rhinitis with hypertrophy of middle and superior turbinates. Cocainization entirely relieved the headache in a few minutes. Daily treatment with the addition of silvol and camphomenthol soon relieved all local disturbance. He has since then been free from headaches.

The above cases appear to be typical of the class treated as migraine, the patient suffering from a few hours to several months believing that it is a mysterious affection to be relieved only by "sleeping it off, wearing it out or by the aid of a cathartic." The congestion may finally subside and relief obtained until the compensatory action of the overworked turbinates again make manifest the engorgement and pressure, to be followed, for hours or weeks, by that terrible symptom designated by the classic name migraine.

The treatment of headaches of nasal origin is both medical and surgical, but not intended to be discussed in this paper. The object to be obtained is to convey as clear an understanding of the cause of a large number of headaches that are of daily occurrence and that can be demonstrated undoubtedly to be of nasal origin, whether occurring in an accessory sinus, the turbinates, or from pressure on the sphenopalatine ganglion. The reflex pain, or the pain felt in the nerve terminals, is often misinterpreted. When the pain is severe in the ear the patient has been not infrequently treated for middle ear abscess. It is common for patients suffering with pain in the eye to seek for glasses to correct the trouble, not once supposing there may be some other cause. This condition should be recognized and all patients suffering with recurring or persistent headaches should receive as careful an examination of the nose as is given the eye when applying to the oculist for the relief of headaches.

In conclusion, I trust you will not think it an exaggeration for me to state that practically all headaches are the result of some local condition in the nose or eyes, whatever the predisposing or remote cause may have been.

318 College St.

MEDICOLEGAL APPLICATION OF HUMAN BLOOD GROUPING.—Facts are submitted by Reuben Ottenberg, New York (*Journal A. M. A.*, March 25, 1922), to support the von Dungern and Hirschfeld conception of the heredity of the blood groups, and its medicolegal application.

ABRUPTIO PLACENTAE (UTEROPLACENTAL APOPLEXY)*

LEE DORSETT, M.D., F.A.C.S.

ST. LOUIS

The case here presented is classed under antepartum hemorrhages and up until a short time ago was called accidental hemorrhage; later the term premature separation of a normally located placenta was used. DeLee has used the term *abruptio placentae* and Holmes has called the condition *ablatio placentae*. Couvelaire in 1911 was one of the first to call attention to this condition being caused or associated with a pregnancy toxemia and used the term *uteroplacental apoplexy*; Williams in 1915 described several cases and confirmed Couvelaire's statement. Since this time many others have agreed with the last two men. In the January (1922) number of *Surgery, Gynecology and Obstetrics*, Willson of Washington, D. C., reports a typical case and reviews the literature of sixty-eight other cases. Willson's conclusions are that the toxin, the nature of which is a hemorrhagin, is liberated by the placenta and causes an inundation of the uterine wall which is greater at the placental site; there are also the other classical symptoms of a pregnancy toxemia, i. e., albuminuria, etc.

Williams' case, which is described in the last edition of his text-book on obstetrics, is one in which a Poro operation was done and the removed uterus carefully examined. The uterus showed a marked hemorrhagic infiltration of the myometrium and a tearing of the muscle fibers with a definite endarteritis present. In describing the etiology of the condition he states that it starts as a decidual hematoma which gradually enlarges and defunctionates that portion of the placenta adjacent to it; as the hemorrhage becomes more copious it travels by a process of dissection to the placental margins and as the uterus is distended by both fetus and an amniotic fluid, it is unable to contract and compress the blood vessels so that the blood makes its way between the uterine wall and the membranes and appears externally; less often it ruptures into the amniotic sac, is retained back of the placenta or by an engaged fetal head. (This last condition is called concealed hemorrhage.)

Premature separation of the placenta occurs in the later months of pregnancy or at the time of labor. In the nontoxic type it may be caused by trauma, a short cord, hydramnios, twins, or by severe intrauterine manipulations. Rigby in 1775 was the first to differentiate this condition from placenta previa, with which it is so often confused.

In the Frauenklinik (Vienna) this condition appeared 34 times in 35,352 cases; in the Sloan Maternity, 57 times in 5,900 cases; in the Dublin Rotunda, 70 times in 6,453 cases; in the Chicago Lying-In, 6 times in 3,600 cases, and in the New York Lying-In, 47 times in 4,200 cases.

The consensus of opinion in regard to the treatment is governed by the fact as to whether the cervix is dilated or not. If the former condition is present the uterus is emptied by either version or forceps; if the patient is not in labor, a cesarean section is indicated, a Poro operation being done if the uterus fails to contract or shows any degenerative changes.

Case Report.—No. 2486. Mrs. M., age 26, married two years, no history of previous pregnancies. First seen December 7, 1921, and gave the following history: No serious illness, injury or operations. Menstruated first at the age of thirteen and has always been very irregular, going as long as eight months without any signs of a flow; periods last from four to five days and she had little if any pain.

Present History.—Patient was unable to give any accurate date as to her last menstruation due to her irregularity. She stated that she first felt life about three and one-half months ago; has enjoyed excellent health during entire pregnancy and had no nausea or vomiting in the early months of her gestation. Has gained about 15 pounds during the last four months and has had some swelling of the feet the last month. No other symptoms of note.

Physical Examination.—Eyes normal. Teeth normal. Slight bilateral enlargement of thyroid. Lungs showed no areas of dullness or rales. No cardiac hypertrophy or murmurs. *Abdominal examination:* McDonald measurement, 33 cm.; uterus dome-shaped and greatest circumference just above the umbilicus. Head above the brim and freely movable, vertex, R. O. P., fetal heart tones loud, 140. Placenta bruit on left midway between symphysis and umbilicus and far out. *Pelvic measurements:* 25, 27, 30, 19, 12, 5, 8, 5. Arch wide. No retraction of cervix or dilatation of os. Perineum intact. Blood pressure 110-72. Urine showed a faint trace of albumin but no casts of any kind. No edema of face, hands or vulva. Slight edema of both ankles. All reflexes normal. Wassermann not taken.

Present History.—At 11 p. m. on December 19 (twelve days after the first examination) while at her home writing, was taken with a sudden and copious uterine hemorrhage. (Patient stated later that in the morning of this day she had noticed unusual fetal movements which were different from those she had noted during her pregnancy. She also stated that there had been considerable swelling of her face and hands for two days prior to the accident but had thought nothing of it.) Following the hemorrhage the patient was placed in bed by her husband but as the bleeding had stopped they were not alarmed, thinking that the "bag of waters" had ruptured. In about an hour hard uterine contraction began and I was notified and ordered the case sent to the hospital.

Condition on Entrance.—Patient came to the hospital three hours after the hemorrhage, was conscious and rational, but showed marked symptoms of hemorrhage and shock. Pulse 130, weak; skin cold and clammy; patient restless and showed slight

*Read before the St. Louis Medical Society January 31, 1922.

air hunger. The uterus was in a state of tonic contraction (ligneous) and the patient was suffering very severe pain in the lower abdomen. Due to the board-like consistency of the uterus it was impossible to make out the outline of the fetus and the heart tones could not be heard. No placental bruit was audible. *Vaginal examination:* Complete effacement of the cervix with three fingers dilatation of the os; the membranes were intact; the head was not engaged and was small.

Operation.—The patient was immediately taken to the delivery room and properly prepared and under ether anesthesia an internal podalic version was performed and a dead male fetus delivered weighing 2,850 gms. The placenta was immediately expelled and evidently was loose in the uterus. The fetus showed marked anemia and evidently had died from asphyxia and hemorrhage. A moderate amount of bleeding followed the third stage; at no time was there any pulsation of the cord felt, either within the uterus or when the child was delivered. The patient was given 1 c.c. of ergot and 1 c.c. of pituitrin and was returned to bed where she received saline hypodermoclysis and proctoclysis and rallied nicely from the operation so that it was not advisable to do a blood transfusion.

Subsequent History.—Twelve hours after delivery the blood pressure was 156-94 and patient had only passed 12 oz. of urine. The urine showed a marked trace of albumin with numerous waxy, hyaline and granular casts and a few leucocytes. There was some swelling of the face, hands and feet, but not as much as when patient entered; patient was drowsy and complained of dimness of vision but had no headache or pain; some nausea and occasional vomiting. Twenty-four hours post partum patient showed some improvement but twenty-four hours afterwards condition was not as good and she had only passed 25 oz. of urine altogether; her blood pressure was 176-128 and there was marked edema of face, hands and feet. Under an active eliminative treatment the patient began to show improvement and continued to improve so that she was able to leave the hospital in 14 days after her delivery. Patient was seen on January 12 at my office and stated that she had never felt better in her life; her blood pressure was 112-72 and the examination of the urine was negative. The uterus showed a normal involution for this time post partum. There were no cervical or perineal lacerations.

University Club Bldg.

FACTORS WHICH INFLUENCE RESULTS IN RECTAL SURGERY*

W. H. STAUFFER, M.D.

ST. LOUIS

After limiting my work to a neglected field for eighteen years I thought it might be worth while to make a general survey, noting a few things that I have learned, hoping thereby to inspire others to more efficient service.

The operation to be selected depends upon the three following factors named in the order of their relative importance: (1) Complete restoration of function. (2) The time required. (3) The pain produced.

A definite diagnosis is imperative in order that the patient may be properly prepared for any operative procedure.

A complete history of the patient should be obtained by the physician in charge; this task must never be delegated to a trained nurse or an office attendant. This is very important if you desire the co-operation and confidence of any individual.

Group medicine is a step in the right direction and should be utilized in most cases in order to insure our patient that everything has been done to guard him against any avoidable danger. Each specialist should report his findings to the one in charge and on no account should his information be divulged to the patient until the diagnosis and treatment have been definitely outlined. Failure to observe this precaution is responsible for the making of many neurotics.

The individual and his environment should be duly considered and the probable prognosis truthfully stated before instituting preoperative treatment.

Constitutional diseases and local abnormalities can be palliated or removed coincidentally and ample time should be taken, unless the acute conditions demand immediate interference. The condition of the heart and arteries demands our first attention, and if found abnormal should be examined repeatedly under various conditions. It is manifestly unjust to the patient and unfair to the anesthetist to postpone this duty until a few minutes before the operation. The respiratory system next claims our attention. The large number of people who have been or who are infected make it obligatory upon the physician that he determine the exact status and be governed accordingly.

A Wassermann is a wise precaution and is frequently a potent factor in determining the extent and nature of the surgical interference to be instituted.

The genitourinary system has always claimed every operator's attention in at least a cursory manner. A physical examination should be made if the history indicates any abnormality. A qualitative examination, both chemical and microscopical, should be a routine measure and if the findings are abnormal a quantitative test is of great value as a determining factor.

Ample time should be taken to correct or to remove any pathological condition, and the treatment should not be carried on conjointly with any rectal interference. The neglect of this precaution is frequently responsible for the need of catheterization post-operatively.

The condition of the prostate should be determined and all infection eliminated. Should the gland cause obstruction to the lumen of the gut or retention of urine, it should be removed unless contraindicated.

The relation of the female reproductive or-

gans to the rectum should never be overlooked. Any malposition interfering with the proper function of the lower bowel should be corrected. All infections of the uterus and adnexia should be properly treated. The advisability of operative interference during pregnancy should be determined conjointly with the obstetrician in charge of the case and the responsibility equally shared.

The intestinal canal should be considered as an organ of alimentation and elimination. Any pathological factor, either functional or organic, should be corrected or removed. Constipation can generally be corrected by directing the patient's diet. A cathartic should not be administered if we have forty-eight hours in which to prepare our operative cases. A non-proteid diet and an enema consisting of a quart of ten per cent. solution of sulphate of magnesium, properly administered daily for three days prior to the operation, will avoid most of the shock and all gas pains.

The operative field should be rendered as nearly sterile as possible before any surgical interference is instituted. Proper local pre-operative treatment in all chronic cases will greatly enhance the comfort of our patient and abbreviate his convalescence.

Shaving the perineum is not necessary in all cases and should be left to the discretion of the operator. All enemas and colonic flushings should be preceded by a rectal irrigation. The nurse should be instructed as to the proper administration of each, and the patient should have at least one hour of rest before any operation.

The local application of three per cent. tincture of iodine, removed by alcohol at once, is a wise precaution. The lithotomy position is preferred by most American operators. In no department of surgery is the proper preparation of the patient more important and his general well-being so well served as in that of the lower bowel.

Ninety per cent. of all cases demanding surgical interference can be classified into the three following conditions, named in the order of their frequency: 1. Hemorrhoids. 2. Fistula in ano. 3. Carcinoma.

Briefly outlined the treatment of each follows:

1. *Hemorrhoids*.—Needless traumatism in rectal surgery is responsible for many unsatisfactory results. Dilation exceeding one inch is unnecessary as a preparatory step in any operation on the rectum or anus. It ruptures the muscle fibers, separates the nerve endings, invites infection, increases post-operative pain, frequently produces partial incontinence, and prolongs convalescence.

The various operative methods may be divided into two classes: (1) Partial excision and devitalization. (2) Complete excision of

the pathological tissue. The clamp and cautery method and most of the so-called ligature operations belong to the first class. They are inadequate because some of the pathology remains to serve as a foci for infection and in many of the cases in which the cautery is employed a cicatrix results which sooner or later breaks down and an ulcer with all of its possibilities for evil remains.

The complete excision of all the pathological tissue is the only satisfactory surgical procedure. The technique of the operation is secondary and differs with every surgeon who does his own thinking. There should be no attempt at a major operation when a minor one is indicated. Broadly speaking, that technique which removes all the pathology and requires the least post-operative attention should be selected.

2. Success in the treatment of perirectal suppurative processes involves the recognition of at least three essentials: (1) Careful determination by every diagnostic means at hand of the site and source of the suppuration. (2) Intelligent decision as to the wisdom of operation, pro and con, and the extent of such procedure. (3) Patient, persistent, personal after care by the operator himself until everything is demonstrably restored. Except the last, these are truisms for all surgery, but the reasons for this will be evident. Two or three operations may be indicated in order to secure complete functional results, and our patient should be advised accordingly. The sphincter ani should never be divided unless there is a reasonable assurance that function will be resumed within seventy-two hours. In no department of surgery is the mechanical ingenuity of the operator more manifest than in the successful management of a case of fistula in ano. There is no method suitable in all cases and only the basic factors in all surgical procedure need be considered. The use of bismuth paste is only mentioned to be condemned. Incomplete and bungling work is the rule rather than the exception in this department of rectal surgery. Will you not help us to obtain more satisfactory results?

3. The surgical treatment of carcinoma of the rectum has little of encouragement to offer. To date I have arrived at the following conclusions: First, ascertain, if possible, if the pathology is local or diffused; second, will an operation prolong life or make the patient more comfortable?

If it is possible to retain the function of the sphincter ani or devise a satisfactory substitute, some perineal method should be employed. If there is an existing metastasis I refer my patient to an abdominal surgeon whose ability and experience qualify him for the hopeless task.

THE JOURNAL

OF THE

Missouri State Medical Association

MAY, 1922.

EDITORIALS

THE JEFFERSON CITY MEETING

There were fewer members registered at the 65th annual meeting held in Jefferson City May 2, 3 and 4, than at any other meeting of the Association in recent years, the registration being 198. The principal reason for this low registration is undoubtedly the proximity of the annual session of the American Medical Association at St. Louis. Nearly all the members on the program, however, were on hand and read their papers, although it was necessary to omit the discussion at several sessions in order to complete the program in the time allotted.

The elevation of Dr. A. R. McComas to the presidency from chairman of the council was universally approved and the vote was unanimous. His long and faithful service in the work of the organization and his unselfish devotion to the interest of the profession at the sacrifice of his own time and personal affairs were acknowledged not only by Dr. Jabez N. Jackson, who made the nominating speech, but by several others who seconded the nomination.

An unusual event, not scheduled in the program, was the celebration of the twenty-fifth anniversary of Dr. Welch's service as treasurer. This was made the occasion of a special order of business in the House of Delegates at which time short talks eulogizing Dr. Welch were made by Drs. Jabez N. Jackson, W. W. Graves, W. H. Breuer and H. E. Pearse. These addresses will be printed in an early issue of THE JOURNAL.

The other officers elected were: 1st vice president, Dr. C. H. Powers, Joplin; 2nd vice president, Dr. Frank I. Ridge, Kansas City; 3rd vice president, Dr. W. C. Gayler, St. Louis; 4th vice president, Dr. E. C. Callison, Kirksville; 5th vice president, Dr. L. M. Edens, Cabool. Dr. J. Franklin Welch, Salisbury, was re-elected treasurer, and Dr. E. J. Goodwin, St. Louis, was re-elected secretary. Two delegates to the American Medical Association were elected: Dr. A. W. McAlester, Jr., Kansas City; Dr. W. J. Ferguson, Sedalia.

The following Councilors were elected: 9th District, Dr. Frank Harrison, Mexico; 10th District, Dr. D. A. Barnhart, Huntsville; 13th

District, Dr. George E. Bellows, Kansas City; 20th District, Dr. A. H. Hamel, St. Louis. Dr. Hamel was also elected Chairman of the Council.

One member for the Health and Public Instruction Committee was elected: Dr. L. C. Chenoweth, Joplin.

The Defense Committee was re-elected as follows: Dr. C. E. Hyndman, Chairman, St. Louis; Dr. Robt. E. Schlueter, St. Louis; Dr. R. S. Vitt, St. Louis.

Three members for the Cancer Committee were elected, as follows: Dr. W. H. Mook, St. Louis; Dr. C. A. Good, St. Joseph; Dr. S. C. Ragan, Moberly.

Joplin was selected as the next place of meeting.

ST. LOUIS CITY APPROBATES ANIMAL EXPERIMENTATION

It is worthy of honorable mention that the City of St. Louis by almost the unanimous vote of its Board of Aldermen, authorizing the sale of dogs from the city pound to the reputable medical schools of the city, has not only refused to tolerate antivivisection, but has come to the aid of physicians in the fight against disease and in the training of doctors. This step is no small one for the municipality to have taken, in the light of the fact that only a few years ago the money subscribed for antivivisection in England was more than twice the amount given for the advance of medicine.

St. Louis has freed herself from dogma; she has looked at the problem as it exists. She has recognized that public health is a problem for the community to handle. She has therefore placed herself among the few English-speaking cities in the world which stand for the highest type of medical progress. Other cities are willing to use the knowledge obtained but they are not willing to aid in its acquisition.

Up to January 27, 1921, the medical schools in St. Louis obtained the dogs necessary for teaching and research from the city pound, although there was no ordinance authorizing this practice. The dogs were given to the schools as they had been given to the city's own laboratories, an arrangement that had been brought about by Dr. Downey L. Harris, former city bacteriologist, and Dr. Henry J. Scherck.

On January 27, 1921, the Humane Society of Missouri through a general understanding with the city officials took charge of the pound in order, according to newspaper accounts, to improve conditions there. The Humane Society immediately stopped the practice of giving dogs to the schools. This move repre-

sented the beginning of an anti-vivisection crusade in St. Louis which has continued and has threatened the progress of medicine in the city. The leaders of the Humane Society not only stopped the use of dogs from the pound but they also attempted to cut off other means of supply which the schools devised to obtain the animals. Men and boys bringing dogs to the school were threatened with arrest and on Sunday, May 15, 1921, there appeared among the special notices of the *Post-Dispatch* the following:

A reward of \$25 will be paid for information leading to the arrest and conviction of parties taking up stray dogs in St. Louis and delivering them to the medical colleges. Humane Society of Missouri, Geo. E. Dieckman, Superintendent.

In the annual report of the Society they stated: "The practice of selling dogs for vivisection is no longer tolerated." Another and more forceful statement of the same kind appears in a paragraph of a letter sent by them to members of the Society over the signature of G. E. Dieckman. This paragraph reads: "Many unclaimed dogs were formerly sold at a profit to medical schools for the purpose of vivisection. When the 'experiment' required a famished condition the animal was starved for a long time and then subjected to most appalling cruelties. Observing students learned something besides physiology—they learned to be cruel; their human instincts became grossly perverted. The Humane Society abolished the sale of dogs for this purpose."

Such activities not only had their immediate effect upon the medical schools but they threatened the further growth of these institutions in St. Louis.

During the year 1921 and the early part of 1922 there were often long periods of time when the St. Louis University School of Medicine and the Washington University School of Medicine could not obtain sufficient animals to conduct their courses. Research on dogs had stopped entirely. On one occasion at the Washington University School of Medicine the course in operative surgery had to be discontinued for as long as four weeks.

Something had to be done. Defensive measures had accomplished nothing. An offensive move seemed most necessary. No ordinance provided for obtaining dogs from the pound. The Humane Society had no legal control of the pound. At the suggestion of Dean Nathaniel Allison, of Washington University School of Medicine, Mr. Sylvester A. Nangle, Alderman from the 25th Ward, introduced in the Board of Aldermen the following ordinance:

BE IT ORDAINED BY THE CITY OF ST. LOUIS, AS FOLLOWS:

Section One. Whenever any school of medicine

in the City of St. Louis, which is recognized and approved by the Board of Health of the State of Missouri, shall apply to the Health Commissioner for an order to the City Marshal directing him to deliver to such school of medicine a certain number of dogs, held and impounded by him, and which are reasonably needed by it to teach and maintain the different courses of, and for the study of, medicine, the Health Commissioner, upon being satisfied as to the standing of the said school of medicine, and that the number of dogs requested is reasonably needed by it to teach and maintain its courses of and the study of medicine, shall make an order to the City Marshal directing him to deliver the said dogs to the said school of medicine.

Sec. Two. It shall then be the duty of the City Marshal to deliver the said dogs to the said school of medicine as directed by the Health Commissioner, and he shall collect a fee of seventy-five cents per head for the dogs delivered, to cover the expenses of taking up and caring for the said dogs.

This ordinance was reported favorably by the Committee on Public Welfare March 4 and passed by the Board of Aldermen on March 31. The vote was 22 in favor and 4 against passage, two aldermen not voting. The mayor signed the bill April 19 and it is now a law. The following aldermen voted for the passage of the bill: Messrs. Bergmann, Eilers, Fett, Heckel, Hirth, Kralemann, Kuhs, Lohmann, Meisinger, Nangle, Neumann, Aug. H. Niederluecke, Wm. F. Niederluecke, Reis, Scholl, Schwartz, Stüdt, Udell, Uhlemeyer, Wanter, Wiehe, and the President, Mr. Aloe.

The following voted against its passage: Messrs. Hart, Tamme, Watts and Wimer.

The success of this measure is to be attributed to two conditions: First, the public spirit and the desire of the people of St. Louis for progress; second, the earnest endeavor of the medical profession of the city.

The people of St. Louis believe in their health department and their reputable medical schools. They realize that progress made in medicine and proper medical teaching is for their good and for no other purpose. They are anxious, therefore, to see that such progress does not wane. Many leaders among them outside of the medical profession rallied quickly to the support of the cause. Many of them, less informed of the methods used in the laboratories and medical schools of the city, made visits to these institutions and inspected them carefully.

Campaigning against the passage of the bill was started by the board of directors of the Humane Society on February 24. At that time, according to the newspapers, their president, Mr. Douglas Robert, stated that they intended to fight the bill and kill it in the committee. During the week following this date the city became flooded with antivivisection literature telling of the uselessness of animal experimentation and the hideousness of the crime.

Campaigning for the defense of the bill was not started until February 27, under the direction of a committee composed of Dr. Max Starkloff, Health Commissioner, Dean Nathaniel Allison, Dr. L. S. N. Walsh, Dr. Joseph Erlanger, Dr. C. M. Gruber, and Dr. M. T. Burrows, of Washington University School of Medicine; Dean Hanau W. Loeb, Vice Dean Don Joseph and Professor John Auer, of St. Louis University School of Medicine.

This committee immediately enlisted the aid of the medical societies, hospitals and physicians throughout the city, the Chamber of Commerce, prominent ministers and lawyers, the mayor and the aldermen, and arranged for the distribution of literature and public addresses.

For the literature the committee is indebted to the *Woman's Home Companion* and the Committee for the Protection of Animal Experimentation, of Boston, Mass. The *Woman's Home Companion* furnished free 1,000 copies of Mr. Ernest Harold Baynes' address, "The Truth About Vivisection," and a large number of copies of the "Third Statement of the Committee for the Protection of Animal Experimentation" was obtained. On March 31 Mr. Baynes came to St. Louis at his own initiative to tell the aldermen "The Truth About Vivisection."

Mr. August H. Niederluecke, Chairman of the Committee of Public Welfare of the Board of Aldermen, who had the bill in charge, made two visits to the Washington University School of Medicine to inform himself at first hand of the conditions as they exist there. At the first visit he was accompanied by two other aldermen. At the second visit he brought twenty of the aldermen with him so that they might make up their minds from what they saw concerning statements made by the opposition.

During the week before the public hearing speeches were delivered by Dr. W. McKim Marriott before the Woman's Republican League, Dr. M. G. Seelig, Dr. A. G. Pohlman and Dr. B. A. Wilkes, before the St. Louis Medical Society, and by Dr. Evarts A. Graham and Dr. W. T. Coughlin, before the board of directors of the Chamber of Commerce. Dr. Graham also gave a public lecture at Washington University School of Medicine on Sunday, March 5.

Numerous clubs and organizations voted resolutions either in favor of or against the bill. Executives of other organizations reached by the committee also expressed themselves. The following voted in favor of the measure: St. Louis Medical Society, St. Louis Association of Surgeons, St. Louis Society of Internal Medicine, Barnard Free Skin and Cancer Hos-

pital, the Board of Directors of the Negro Republican League, the Chamber of Commerce (3,000 members), the St. Louis Association of Methodist Ministers (29 members), the American Federation of Labor, College Club (600 women), Wednesday Club (300 women), the Catholic Women's League, the Jewish Women's Council (1,015 members).

Resolutions against the passage of the bill were passed by the Women's Chamber of Commerce and the St. Louis Branch of the American Medical Liberty League.

The *Globe-Democrat* and the *Post-Dispatch* published editorials in favor of the bill. No opposing editorials appeared in any of the newspapers.

The resolutions passed by the St. Louis Medical Society were published in THE JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION for April. On March 1 the committee sent to every physician in St. Louis a copy of these resolutions and a letter asking each one to discuss this matter with his alderman and his patients.

Among the men of the city outside of the profession who worked for the bill were Mr. Frank V. Hammar, vice president of St. Luke's Hospital and the Barnard Free Skin and Cancer Hospital; Mr. A. Waldheim, president of the Jewish Hospital; Mr. Cecil Gregg and Mr. P. V. Bunn of the Chamber of Commerce.

A public hearing was held before the Committee of Public Welfare of the Board of Aldermen on March 7. The chamber was crowded with people. The cause of the medical schools was presented in able addresses by Dr. Max Starkloff, Commissioner of Health, Rabbi Leon Harrison, of the Temple Israel, who is a member of the Humane Society of Missouri; Mr. Frederick W. Lehman, former Solicitor-General of the United States; Father Michael J. O'Connor, acting president of the St. Louis University, who spoke not only his view but also the view of Archbishop Glennon; Rev. John W. McIvor, of the Second Presbyterian Church, representing the Protestant ministers and a member of the Humane Society; Mr. Edw. Gegenbach, assistant secretary of the Chamber of Commerce, and Dr. A. H. Hamel, president of the Missouri State Medical Association.

The other side was represented by Mr. Geo. E. Dieckman, superintendent of the Humane Society; Mrs. J. Alex. Goodwin, a member and director of the Humane Society; Mr. Chas. L. Delbridge, statistician; Mr. Frank H. Gerhart, real estate agent, and Douglas Robert, a lawyer and president of the Humane Society.

The meeting was a great success for the bill. The speeches in its favor were of the

ablest kind. It was an educational event of which reputable medicine can always be proud.

There was little opposition aside from a few rabid statements. The chief plea of the Humane Society was that they could not be a party to vivisection practices. They wanted the pound but must ask the doctors to get their dogs elsewhere.

The physicians of Missouri can rightly be proud that their great metropolis is among the first cities to recognize that medical progress, whether it be in knowledge gained by careful experimentation or in teaching students, is a civic responsibility and to take steps for maintaining it.

PREMEDICATED ALCOHOL A MENACE TO MEDICINE AND PHARMACY

Alcohol as a preservative and a solvent in pharmaceutical preparations has been used for several hundreds of years. Before its valuable properties in these directions were discovered and developed, the practice of medicine was accompanied for the most part by the administration of disagreeable suspensions of the drugs themselves, or bitter and nauseous decoctions or infusions usually given in large volume.

The widely used and indispensable concentrated and efficient preparations of drugs known as tinctures and fluid extracts cannot be made without alcohol and the years of experimentation which have been represented by the many decennial revisions of the United States Pharmacopoeia have never discovered a satisfactory substitute, although thousands of experiments have been made in this direction, because in many of these liquid preparations the alcohol is the most expensive constituent used.

There are those among the uninformed and prejudiced who judge and condemn all preparations on their alcoholic content alone, and who, not knowing the reasons for the use of the alcohol, and especially for the variation of its content in different kinds and classes of preparations, make ridiculously unwarranted criticisms of pharmaceutical preparations containing more than very small percentages of alcohol.

These same uninformed critics seem to have an idea that alcohol is used lavishly, heedlessly and in unnecessarily large amounts in pharmaceutical preparations generally. They also overlook, in their ignorance, the fact that alcohol is not only used in many of these preparations as a preservative but also as an indispensable solvent, and it is as a solvent that we are confronted in many instances with

the fact that there is an irreducible minimum beyond which it is not wise nor safe to pass if the full therapeutic activity is to be maintained.

The range of alcohol in various classes of galenical preparations is as follows:

Fluid extracts, 20 per cent. to 85 per cent. of alcohol by vol.

Tinctures, 20 per cent. to 90 per cent. of alcohol by vol.

Spirits, 50 per cent. to 95 per cent. of alcohol by vol.

Elixirs, 12 per cent. to 40 per cent. of alcohol by vol.

The higher alcohol figures are those of preparations in which resinous constituents or volatile oils predominate.

Now, we are confronted with a situation in Washington where it is proposed to require premedication of all alcohol for manufacturing medicinal preparations. Such a plan would wipe out of existence much of the pharmacy and medicine of today, so far as the use of the preparations referred to above is concerned. Such a ruling is favorable only to the manufacturers of one or two preparations, made in large amounts. In other words, the patent medicine manufacturer would be the only one to profit by such a ruling, which would not only deprive the government of a large amount of much needed revenue (for such premedicated alcohol would be used tax free if denatured in bond) but would inflict irreparable damage to the professions of medicine and pharmacy where plain, unmedicated alcohol has a legitimate use.

What is needed is administration of the penalizing power of the law and not the hampering of the progress of the professions of medicine and pharmacy.

As was stated in a resolution passed several years ago at a meeting of the American Medical Association, "undenatured ethyl alcohol has a legal and proper place in legitimate industry in connection with chemical, pharmaceutical and medical products," and any interference with such use is an unwarranted assumption of power on the part of officials who are either ignorant or misguided.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association is a scientific organization but is composed of members with more than the average amount of "humanity" in their makeup, with social elements too long repressed. These members are weary from bearing the responsibility of many human lives. Instead of having play

time they have become public teachers with no recess. The local entertainment committee of the A. M. A. has been busy preparing to show these visitors true St. Louis hospitality and to provide for them such diversions as will be both restful and entertaining.

The golfers will arrive early in order to participate in the annual tournament on Monday, May 22.

Tuesday evening the opening meeting will be held in the Odeon and arrangements are being made to have the music and addresses transmitted by radio to various parts of the city and to distant cities.

Wednesday evening is given over to banquets, such as alumni, fraternal, sections, etc. On this evening provision is being made to entertain the visiting ladies, and those physicians who are not engaged at the alumni and fraternity dinners, at one of St. Louis' noted moving picture shows with special musical and other features for the occasion.

On Thursday afternoon the Medical Department of Washington University will give a special tea on the grounds of the institution. Thursday evening will be given over entirely to the president's reception and it is hoped that as many as possible of the Fellows and the ladies will grace the occasion with their presence.

The committee after visiting the offices of the mayor and the director of public welfare and being assured of their co-operation, has decided to reserve until Friday evening the chief feature of the entertainments by giving a special program for the entire Association in the unique open air Municipal Theater which has a comfortable seating capacity of ten thousand. The location of the theater, in the heart of Forest Park with its special lighting effect made possible by the natural foliage of the forest, can be appreciated only by those who visit it at night. It is the hope of the committee that every visitor at the convention will remain in St. Louis through Friday evening.

The Ladies' Entertainment Committee, under the leadership of Mrs. Willard Bartlett, has arranged to take immediate charge of every lady visitor who may be persuaded to accompany the medical member of the family to the convention. They need have no fear of being left alone while the doctor is attending the scientific meetings, for practically every hour of the time has been arranged for, and it is hoped that many more ladies than usual will visit the "City of Homes—" "The Friendly City."

A special visit to the Missouri Botanical Gardens is being arranged for and will be an important item in the entertainment program. Among other features to be shown will be an

old Italian herb garden. St. Louis is justly proud of its world famous botanical garden.

Dr. C. E. Burford, 3525 Pine St., is Chairman of the Entertainment Committee.

PROCEEDINGS OF NEUROLOGICAL SOCIETY

The Neurological Society of St. Louis have decided to publish their scientific proceedings in *THE JOURNAL*. It is to be hoped that this action will redound to the good both of the Neurological Society and of the practitioners of the state. The society should benefit through the increased interest of the members which will be excited by the stimulus of publicity.

General practitioners and specialists in other lines also should find something of interest and value in the case reports, papers and discussions, since these will usually be of general appeal and will come from men well trained in the subject. After all, neurology like the other specialties is but a division of the larger science of medicine and is in no sense isolated by hard and fast division lines. In general, only difficult and prolonged neurological cases come to the neurologist while the great majority of such cases are now, and will necessarily always be, under the care of general practitioners. This is as it should be—providing, of course, that the practitioner is prepared to give this type of patient proper care. It is very important that he take pains to be prepared, for neurology is constantly adding to its store of knowledge and in some respects is undergoing rather great changes. What was true a few years ago is not necessarily true today, so to speak. To mention only one instance: entirely new methods of investigating and treating the neuroses have come into favor in recent years.

One source of information of the most recent and reliable sort will become available to practitioners in the proceedings of the St. Louis Neurological Society. A great majority of the cases and topics will undoubtedly be of general interest, and an effort will be made to have the reports clear, brief and as free from technical details as is consistent with accuracy. The proceedings of the meeting of the society for March 22 appear in this issue.

AN ASSOCIATION OF CARDIOLOGISTS

A meeting of those especially interested in the study of heart affections will be held in the lecture room of the department of chemistry of the Washington University Medical

School, St. Louis, on Tuesday, May 23. This meeting will be under the auspices of the Philadelphia Society for the Prevention and Relief of Heart Diseases, which society has delegated Dr. S. Calvin Smith of Philadelphia as its representative. It will be held in connection with the electrocardiographic exhibit at the St. Louis meeting of the American Medical Association. The purpose of the meeting is to organize an association wherein rules could be evolved which will establish the art of electrocardiography on a firm clinical basis rather than on the basis of technical grounds. In this way electrocardiography as one of the means of studying heart diseases may be properly evaluated, and from such efforts there might result the standardization of technic, not only in the taking of records, but also in their preparation and correct interpretation. In this way also there might result a clear definition of the limitations of the subject in its present stage of development. All those interested in the study of heart affections will be welcome to this meeting.

NEWS NOTES

THE Medical Protective Company of Fort Wayne, Indiana, announce that they have appointed Mr. Wm. H. Braun to represent the firm in the eastern half of Missouri. Mr. Braun's headquarters are at 214 University Club Bldg., St. Louis, Mo.

DR. M. WILEY, of Wentworth, Newton County, desires to retire from active practice because of age and failing health and wants a younger physician to take his place. Wentworth is a town of 500 on the Frisco Railroad. No other physician in the town. Address inquiries to Dr. Wiley.

ALL members of the Alpha Omega Alpha fraternity are cordially invited to attend a luncheon and reunion to be held in St. Louis on Thursday, May 25, 12:30 p. m., at a place to be announced later. This luncheon will be given under the auspices of the St. Louis Chapter and all members, visitors and residents are invited to attend. Reservations at \$2.00 per plate should be sent to Dr. E. H. Terril, Barnes Hospital, St. Louis, on or before May 18.

THE following have been appointed instructors in the St. Louis University School of Medicine: Dr. George Gellhorn, Professor of Obstetrics and Gynecology and Director of the Department; Dr. William Kerwin, In-

structor in Gynecology; Dr. W. E. Sauer, Professor of Ear, Nose and Throat Diseases; Dr. John Green, Jr., Associate Professor of Ophthalmology; Dr. Edward H. Higbee, Assistant Professor of Ophthalmology; Dr. H. S. Hughes, Instructor in Ophthalmology; Dr. E. C. Spitze, Instructor in Ophthalmology; Dr. H. D. Lamb, Instructor in Ophthalmology; Dr. O. V. Lieb, Assistant in Ophthalmology; Dr. R. E. Mason, Assistant in Ophthalmology; Dr. Hugo Reim, Assistant in Ophthalmology; Dr. Richard Kring, Assistant in Dermatology; Dr. H. Sandperl, Assistant in Surgery; Dr. Eugene Hartley, Assistant in Genito-Urinary Diseases; Dr. B. G. Haumesser, Assistant in Medicine; Dr. L. W. Schreiber, Assistant in Medicine.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Abbott Laboratories: Izal, Izal Disinfectant Powder.

Intra Products Co.: Ven Sterile Solution Mercury Benzoate 1 c.c.

Merrell-Soule Co.: Powdered Protein Milk—Merrell-Soule.

Parke, Davis & Co.: Pertussis Vaccine, Pneumococcus Vaccine (4 types), Streptococcus Vaccine Polyvalent (Scarlatina), Typhoid-Paratyphoid Vaccine (Prophylactic).

Seydel Manufacturing Co.: Benzocaine—Seydel.

Winthrop Chemical Co.: Iothion, Iothion Oil, Sabromin, Sabromin Tablets, 8 grains.

Acriflavine-Heyl, Proflavine-Heyl: These products are now marketed by the National Aniline and Chemical Co. and the Council has continued the acceptance for New and Nonofficial Remedies under the new firm name.

THE National Research Council has established fellowships in medicine created for the purpose of increasing the supply of thoroughly qualified teachers in medicine in both clinical and laboratory subjects and in both curative and preventive aspects. The fellowships are supported by appropriations of the Rockefeller Foundation and the General Education Board amounting in total to one hundred thousand dollars a year for a period of five years. Those receiving awards will be known as fellows in medicine of the National Research Council.

To qualify for appointment as a fellow, a candidate must have the degree of doctor of medicine or doctor of philosophy from an approved university, or preparation equivalent to that represented by one of these degrees. Only citizens of the United States or Canada

will ordinarily be appointed, although the fellowship board is authorized to set aside this provision in exceptional cases. The fellowships will be open to both sexes.

Since the principal purpose of establishing these fellowships is to increase the number of competent teachers in the field of medicine, each incumbent will be required to gain experience in teaching. As creative work is regarded as essential to the best teaching, emphasis will also be placed upon research.

Fellows will be at liberty to choose the institutions or universities in which they will work, as well as the men under whose direction they will carry on their researches, subject to the approval of the fellowship board.

Appointments are to be made for a period of twelve months, beginning at any time in the year, with an allowance of six weeks for vacation. The time may be extended, however, if in the judgment of the board the work which the fellow has done justifies it. The stipends are not definitely fixed in amount, but they are intended to enable the individual to live comfortably while carrying on his special work as a fellow.

The fellowships will be administered by a special committee, known as the Medical Fellowship Board of the National Research Council.

Correspondence concerning the fellowships should be addressed to the Division of Medical Sciences, National Research Council, Washington, D. C.

OBITUARY

THOMAS N. BOGART, M.D.

Dr. Thomas N. Bogart was born near Greenfield, Dade County, Mo., Feb. 15, 1868, died at Excelsior Springs, Mo., March 28, 1922.

Dr. Bogart was a descendent of one of the oldest families in Missouri, his grandfather having settled in Ray County in 1816. The "Bogart Bridge" on Fishing River is one of the historic spots mentioned in Missouri history and was named from Alexander Bogart, pioneer.

Endowed with a remarkable fund of self-reliance, Dr. Bogart forged his own career, attaining the summit of being one of the best known physicians of the Middle West. His preliminary education was obtained in the public schools of Ray County and completed in the State Normal School at Warrensburg. The profession of teaching occupied his time some six years, until he entered the Marion-Sims College of Medicine in St. Louis, from

which he graduated with distinction in 1893. He returned there for a year of post-graduate work in 1898, and located in Excelsior Springs for the practice of his life profession. He quickly acquired a patronage of almost nation-wide extent, as a physician-specialist in diabetes and kidney diseases.

Realizing the advantages of study abroad, he spent two extended seasons in the great medical centers of Vienna, London and Berlin, visiting as well the most noted watering-places of the Old World, thus obtaining much valuable knowledge in hydrotherapy.

Dr. Bogart's society affiliations were: Ex-president and member of the Clay County Medical Society, ex-vice president and member of the Missouri State Medical Association, and Fellow of the A. M. A. He served Excelsior Springs in the City Council and was a member of the local school board for many years. He was a devoted member and trustee of the Methodist Church, South.

In 1896 Dr. Bogart was married to Miss Utie Russell, a daughter of one of the old and highly esteemed families of Ray County. To this union one child, a daughter, Sadine, was born. Budding into beautiful young womanhood, Sadine was stricken with a fatal disease and passed away in May, 1918. From this crowning sorrow of his life Dr. Bogart never recovered.

A man whose friends were numbered by his thousands of acquaintances, and who was known in almost every hamlet of his county, needs little eulogy from a pen that trembles as it notes the incidents of a good doctor's life and death. The medical profession of Excelsior Springs has lost a staunch adherent, the community a valued citizen, and the church a devoted pillar. The funeral services, participated in by clergy and laymen, were attended by a vast assemblage of friends that filled not only the Methodist chapel but the streets adjacent. And as the cortege passed along the streets, an eloquent silence prevailed, the silence of farewell to one who will be missed.

JOHN J. GAINES, M.D.

THOMAS R. THORNTON, M.D. 1843-1922

Dr. Thornton was born in Calhoun, Missouri, in 1843, and died at his home in Kansas City, February 26, 1922. He graduated from the St. Louis Medical College in 1868, and spent practically the whole of his useful life in Lee's Summit, Missouri. He was one of the charter members of the old Kansas City District Medical Society, and is well known throughout this part of the state as one of

the pioneers in medicine, always standing for the best.

He joined the Jackson County Medical Society in 1902 and was elected an Honorary member in 1909.

Dr. Thornton led an active and useful life and the community and profession will miss his counsel and friendship. A few years ago he retired from active practice and spent several years in California, returning last year and making his home in Kansas City.

Dr. Thornton was unable to be present at the celebration of his semi-centennial in the practice of medicine by this Society two years ago and the loving cup was sent to him in California. A letter of deep appreciation was received from him and his portrait showing the loving cup upon a table. This will be kept in the archives of our Society.

Our deepest sympathy is extended to his wife and daughter, Mrs. Howard C. Jeffers, of Springfield, Mo., and his brother, R. T. Thornton, of Kansas City, Mo.

AMOS T. FREYMAN,
C. LESTER HALL,
W. F. KUHN,
Necrologic Committee.

LETTER FROM DR. THORNTON*

Long Beach, Cal., Jan. 23, 1921

Dear Doctor:

I wish you would find some way to tell the Jackson County Medical Society what a treasure I have in my "Loving Cup" awarded to me nearly one year ago.

As an introduction and credentials it is *par excellence*. I not only show it to my friends and guests, who call at our lodgings, but even had the audacity to take it across the street and show it to my doctor, my druggist and my banker. When they read the inscription, the results were immediate and gratifying.

This means a great deal to the isolated California Tourist, who like

"Ships that pass in the night, and speak each other in passing,
Only a signal shown and a distant voice in the darkness!

So on the ocean of life, we pass and speak one another,
Only a look and a voice, then darkness again and silence."

Very sincerely,

THOS. R. THORNTON.

—*Jackson County Medical Society Bulletin*.

*In appreciation of the honor conferred upon him by the Society March 4, 1920.

CORRESPONDENCE

THEORY ON PATHOGENESIS OF NEU-ROSES AND PSYCHOSES

St. Louis, April 1, 1922.

To the Editor:

The number of theories as to the pathogenesis of the neuroses and psychoses is in itself evidence of the obscurity which conceals their origin; despite lack of evidence, investigators still manifest an inclination toward a physical basis for them.

The writer desires here to propose an hypothesis to explain the nature of the structural basis which many assume to exist. The nervous system is particularly rich in the number of congenital and degenerative affections of obscure etiology but evidently on a structural basis. Among the congenital affections may be mentioned Little's disease (pyramidal aplasia), color blindness, word blindness, etc., and among the degenerative affections, myopathy, progressive spinal atrophy, paralysis agitans and Huntington's chorea. Further consideration of the degenerative group discloses the fact that each is limited to one or a few related physiological functions beyond which they do not transgress and that although all evidently depend on structural changes, such changes in general are demonstrable only at lower levels. By analogy the progressive mental conditions, of which dementia praecox is an example, are assumed to depend on a degenerative process affecting structures subserving certain physiological functions, which degeneration, by reason of the small size or scattering of the structures, is impossible of demonstration with present technical methods. The neuroses, on the other hand, in some cases depend on congenital deficiencies affecting similar functions. These functions, it may be said probably represent unit characters in the genetic sense.

On these assumptions, the following tabulation is proposed:

Degenerative conditions...	{ Huntington's chorea, etc. Dementia praecox Senile dementia Epilepsy.
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Congenital conditions...	{ Little's disease, etc. Psychopathic personality Idiocy Psychoneuroses (?).
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Doubtful....	{ Manic depressive psychosis Compulsion neurosis.
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L. B. ALFORD, M.D.

MISCELLANY

SCHEDULE OF CLINICS TO BE HELD AT ST. LOUIS PRECEDING THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION, MAY 18-23, 1922

Alexian Bros. Hospital
3933 S. Broadway

May 19 and 20:

- 9-12. General Surgery, Dr. Carroll Smith.
Genito-Urinary, Dr. J. W. Marchildon.
Medical, Dr. E. P. Buddy.
Neurology, Dr. H. Unterberg.

May 18 and 20:

- 2-5. Ear, Nose and Throat Clinics, Dr. S. S. Burns.

May 19 and 22:

- 2-4. Eye Clinics, Dr. J. Keller.

Barnard Skin & Cancer Hospital

3427 Washington Ave.

May 22:

- 10-12:30. Continuous Clinic by Departments of Dermatology, Surgery, Gynecology, Pathology.

Barnes Hospital and St. Louis Children's Hospital

4945 Kingshighway

May 18-23:

- 9-12. Surgery, Medicine, Pediatrics, Obstetrics.
Washington University Medical School

May 18-23:

Department of Biological Chemistry

Demonstration of Methods of Blood Chemistry and of Basal Metabolism by Members of the Staff.

Department of Anatomy

Demonstration of Procedure of Investigating the Accuracy of the Methods of Blood Pressure.

Bethesda Hospital

3659 Vista Ave.

May 18-23:

- 9-12. General Surgery, Dr. Roland Hill.

City Hospital Unit No. 3

14th and Lafayette

May 18-23:

- 9-12. Surgery, Gynecology, Medicine.

May 18, 20, 22:

- 1-3. Genito-Urinary.

May 18, 20, 23:

- 2-4. Ear, Nose, Throat.

City Hospital No. 2

2945 Lawton St.

May 18 and 20:

- 10-11. Neurologic Clinic, Dr. J. M. McFadden.

DEACONESS HOSPITAL

4125 W. Belle Pl.

May 18:

- 9-10. Gynecology, Dr. Lee Dorsett.
10-12. Surgery, Dr. H. L. Nietert.

May 19:

- 9-10. Orthopedics, Dr. F. H. Albrecht.
9-10. Surgery, Dr. F. L. Reder.
9-10. Surgery, Dr. E. A. Babler.
10-12. Medicine, Drs. Hemplemann and Schreffler.

May 20:

- 9-10. Urology, Dr. Herluf G. Lund.
9-1. Surgery, Dr. E. A. Babler.

May 21:

- 10-12. Surgery, Dr. C. H. Shutt.
11-12. Medicine, Drs. Hemplemann and Schreffler.

Jewish Hospital

5415 Delmar Ave.

May 18:

- 9-11. Dr. Harry Sandperl.
9-10. Dr. Phil Hoffmann.

May 19:

- 9-11. Dr. R. Y. Tilles.
2-4. Dr. Barney Brooks.

May 21:

- 2-4. Dr. Ernest Sachs.

May 22:

- 8-10. Dr. H. W. Loeb and Dr. S. B. Westlake.
2. Dr. L. K. Guggenheim.
2. Dr. Meyer Wiener.

LUTHERAN HOSPITAL

Ohio and Potomac Sts.

May 20:

- 8-10. Dr. R. E. Schlueter.

(Other dates will be announced later.)

Mullanphy Hospital

Montgomery near Grand

May 18:

- 8-10. Dr. R. E. Schlueter.

(Other dates will be announced later.)

Missouri Baptist Sanitarium

919 N. Taylor Ave.

May 18:

9. Medicine, Dr. L. H. Behrens and Dr. Geo. Ives.
9. Surgery, Dr. W. S. Wiatt and Dr. W. Bartlett.
9. Gynecology, Dr. H. M. Lowenstein.

May 19:

9. Surgery, Dr. H. Talbott and Dr. W. Bartlett.
Medicine, Dr. O. H. Campbell.
Neurology, Dr. F. R. Fry.
Orthopedic, Dr. M. L. Klinefelter.
Surgery, Dr. V. P. Blair.

May 20:

9. Staff Meeting.

May 22:

9. Medicine, Dr. C. H. Neilson.
Genito-Urinary, Dr. C. E. Burford.
Surgery, Drs. H. Talbott, W. S. Wiatt, W. Bartlett.
Orthopedic Surgery, Dr. M. L. Klinefelter.
Otolaryngology, Dr. S. Spencer.

St. Anthony's Hospital**Grand and Chippewa**

May 18:

- 9-11. Surgery, Dr. Willis Young.

May 18, 20, 23:

- 9-12. Maxillo-Facial, Plastic and General Surgery, Drs. H. S. McKay, F. J. Tainter.

May 20 and 23:

- 9-12. Medicine, Dr. J. C. Lyter.
Pathology, Clinical and Experimental Demonstrations.
Genito-Urinary Clinic, Diagnostic, Operative, Neil S. Moore.

St. John's Hospital**Euclid and Park View Pl.**

May 19 and 20:

- 3-5. Endocrine Clinic, Enbgebach and Tierney.
Conducted by: Llewellyn S. Barker of Baltimore, David Riesman of Philadelphia, Nelson W. Janney of Los Angeles.

St. Louis Baptist Hospital**2945 Franklin Ave.**

May 19:

- 8-10. Genito-Urinary Surgery, M. E. Hagerty.
9-11. Plastic Bone Surgery, Arthur Gundlach.
Demonstration of two cases.

- 9-10. X-Ray Clinic, M. B. Titterington.

May 20:

- 8-10. Plastic Bone Surgery, F. L. Morse.
8-12. Surgical Clinic, J. D. Hayward.
12-1. Buffet Luncheon.
10-12. Diseases of Chest, Solon Cameron.

May 22:

- 8-12. Surgical Clinic, Dr. E. H. Johnson.
12-1. Buffet Luncheon.
2-4. Laboratory Demonstrations, Dr. R. B. H. Gradwohl.
1-5. Eye, Ear, Nose and Throat Clinic, Dr. A. S. Steiner.

May 23:

- 8-10. Surgical Clinic, Dr. H. C. Bohrer.
10-12. Surgical Clinic, Dr. C. C. Morris.
12-1. Buffet Luncheon.
1-5. Ear, Nose and Throat Clinic: Tonsillectomies, Local and Gas Anesthesias, Septum Operation, Esophageal Examination.
1:30-4. Genito-Urinary, Dr. W. E. Jost.

St. Louis University Medical School

Laboratory Demonstrations. Dates will be announced later.

St. Luke's Hospital**Delmar and Belt Aves.**

May 18-23:

- 9-12. Medical and Surgical Clinic.

St. Mary's Infirmary**1536 Papin St.**

May 18:

- 9-10. Empyema (Local).
Hysterectomy, Vaginal, for Carcinoma, Dr. J. McH. Dean.
Demonstration of Cases of Empyema, Chronic Paroxysmal Tachycardia, Dr. F. Neuhoft.
2-4. Operations on Eye: Demonstration of Ophthalmoscopic Cases, Drs. H. Luedde, J. F. Hardesty.

May 19:

9. Retroversion of Uterus, Repair of Perineum.
10. Cholecystectomy, Cholecystitis, Chronic Gall Stones, Dr. Louis Rassieur.
11. Hypertension Disease, Cardio-Renal Patients, Dr. A. C. Henske.
1-2. Neurological Clinic, Drs. Barnes and Elliott.
4. Genito-Urinary Clinic, Drs. Burford and Konig.
Salvarsan Injections, Drs. Custer and Kramolowsky.

May 20:

9. Thyroidectomy for Toxic Goiter.
10. Cholecystectomy for Gall Stones.
11. Demonstration of Case of Diverticula of the Jejunum, Dr. J. F. Clancy.
2. Demonstrations of Pathological Specimens, Diseases of Children, Dr. J. F. Clancy.

May 22:

9. Transposition Operation for Uterine Prolapse.
10. Thyroidectomy for Toxic Goiter (Local), Dr. J. McH. Dean.
11. Treatment of Bronchial Asthma by Defibrinated Blood. Demonstrations of Cases of Pulmonary Tuberculosis, Dr. A. C. Henske.
2-4. Demonstrations of Interesting Cases of Children's Diseases, Dr. J. B. Costello.

May 23:

9. Operations on the Gall-Bladder and Bile Ducts for Gall-Stones.
10. Umbilical Hernia, Dr. Louis Rassieur.
11. Demonstrations and Discussions of the Use and Benefits of the Duodenal Tube, Dr. F. Neuhoft.
2-4. Tonsillectomies and Adenoidectomies (Ten Cases), Deviated Septum, Mastoid Operation (Radical), Drs. S. B. Westlake and Schmitt.

Physicians attending these Clinics are requested to register at the office of the St. Louis Clinics, 3525 Pine St., giving their St. Louis address, so that the daily Bulletins may be mailed to them.

URTICARIA FROM HABITUAL USE OF PHENOLPHTHALEIN.—The case cited by Edward F. Corson and David M. Sidlick, Philadelphia (*Journal A. M. A.*, March 25, 1922), is an addition to the few instances in which phenolphthalein has been noted to produce a skin eruption. Differing from previously reported cases, the patient had an outbreak, clinically indistinguishable from the common type of urticaria.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
 Montgomery County Medical Society, Dec. 15, 1921.
 Chariton County Medical Society, Dec. 23, 1921.
 Webster County Medical Society, Dec. 27, 1921.
 Clark County Medical Society, Jan. 13, 1922.
 Reynolds County Medical Society, Jan. 17, 1922.
 Camden County Medical Society, Feb. 8, 1922.
 Schuyler County Medical Society, Feb. 10, 1922.
 Perry County Medical Society, Feb. 13, 1922.
 Vernon County Medical Society, March 24, 1922.
 Pulaski County Medical Society, March 31, 1922.
 Atchison County Medical Society, March 31, 1922.
 Laclede County Medical Society, April 1, 1922.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Fifth Meeting, February 13, 1922

1. EXHIBITION OF CASES.

A. "HODGKIN'S DISEASE."—By DR. S. H. KAHN.

F. G., white, male; age 35. C. C. Pain in abdomen, general weakness. F. H. Unimportant. P. H. Multiple arthritis, 1920; no other ailment. P. I. Gradual onset, eight months ago (July, 1921), noticed pain in left upper quadrant; nausea; some time later noticed asthenia. Gland excised from neck at City Hospital, August, 1921, showed semi-necrotic material; also found enlarged spleen. Thinks spleen has not enlarged in last three months. Perspires freely; thirsty.

P. E. Enlarged glands in neck, axilla, elbow, and groin; enlarged spleen extending down below umbilicus at about level of iliac crest; blood pressure 85/60. Heart 13 cm. to left of midsternal line; Prostate irregular in consistency; secretion, occasional clumps of pus cells. Teeth carious; pyorrhea alveolaris. Urine negative. Blood. Red blood cells, 3,800,000; white blood cells, 4,600; hb. 58 per cent. S. M. 10-12 per cent. L. M. 3.2 per cent. P. M. N. 74-85 per cent. P. M. E. 21.1 per cent. Temperature, 36-38.5. Pulse, 90-110. Pathological report on glands: Hodgkin's disease.

Diagnosis.—Hodgkin's disease. General glandular enlargement. Anemia. Prostatitis (chronic). Semino-vesiculitis. Hypotension.

DISCUSSION

Dr. George Dock: We have not the full report on the glands. We show this as a case of Hodgkin's disease, but a microscopic diagnosis has not yet been made so that the diagnosis of Hodgkin's disease is more or less a guess. The case is interesting on account of the fact that it has not shown, in these two examinations, a leukemia. It has lasted rather longer than the usual period of Hodgkin's disease, and the spleen is unusually large, although in Hodgkin's disease the spleen does not sometimes get very large. X-ray treatment was given with the idea of affecting the spleen. At the present time the spleen is rather too large to remove. By X-ray treatment we hope to reduce the size of it so that it can later be removed. The patient is not quite as sick as he looks.

Dr. Sachs: What is the therapeutic effect of taking the spleen out in Hodgkin's disease?

Dr. Dock: He would get rid of that much diseased tissue, and by treating the rest of it with X-ray he would improve. It would just relieve him of that much diseased tissue.

B. FUNNEL CHEST.—By DR. R. M. KLEMMÉ.

DISCUSSION

Dr. Geo. Dock: This case has a number of points of interest, as Dr. Klemme has mentioned. The scoliosis is interesting on account of the negative appearance of the chest aside from the depression. One would hardly suspect that the patient had the deformity of the back by looking at her from the front, and this is usually so in such cases. Another striking thing is the length of the patient. She is about 6 feet 2 inches lying in bed, and straightened out about 6 feet 6 inches. She is then a pituitary subject and has some other features belonging to it, the length of the legs, the arms not being quite so long, and the rather long hands. The girl is 17 years of age, which no one would suppose from her appearance. In regard to funnel chest, we have no data. The mother cannot tell us about the development of any of the deformities. There is a characteristic displacement of the heart, the X-ray picture showing that the heart is away from the midline, somewhat corresponding with the curvature of the spine in the back. There is a very marked thrill in the aortic area, and there seems also to be a murmur, without evidence of aortic disease. There is a question as to whether she hasn't a kink in her great vessels. Little seems to have been added to the pathology of funnel chest since Eric Estein's paper in 1909, and one from Marchand's laboratory in 1910. They could come to no definite conclusions. One thing seems to be settled and that is that it has nothing to do with "shoemakers." Of course, I do not speak of machine shoemakers in this connection but we refer to the old-time shoemaker who held the last up against the side of his body, and not against the sternum.

C. A CASE OF UNILATERAL OPTIC ATROPHY.—By DR. O. W. LOHR.

Adult, male, age 28, married. History of rheumatism in childhood with involvement of heart. Complaint at present time of blindness in left eye. Blindness came on suddenly two months ago, while patient was shaving. Became completely blind in left eye in 45 minutes' time. He had slight return of sight since then. Chancre four years ago. Received six injections of salvarsan and five deep injections of mercury. Diagnosis on the neurological service unilateral optic atrophy due to thrombosis of central artery. This diagnosis was confirmed by Dr. Hardy in the eye clinic. Lumbar puncture was done with the following results. Pandy four plus. Cells 397. Wassermann two plus, twice.

There are thus two questions to consider as to the cause of the optic atrophy, syphilis and thrombosis of the artery.

DISCUSSION

Dr. Sidney I. Schwab: The only thing that I wish to say about this case is that when a diagnosis of optic atrophy is made it is essential that a Wassermann test be made on the patient's blood and a lumbar puncture done before the final diagnosis is made. Just what relation syphilitic meningitis might have to the acute onset of optic atrophy on the right I do not know. This is a very striking illustration of the fact that all conditions of the eye, certainly all conditions to which this case might belong, should be studied from the standpoint of internal medicine and neurology as well as from ophthalmology.

Dr. E. L. Opie: Was this an embolus?

Dr. Sidney I. Schwab: The appearance of the disc and the history of the sudden blindness together with the presence of aortic insufficiency made the diagnosis an adequate one as far as the interpretation of this series of findings went. The appearance of the disc suggested to us the possibility of an embolus of the central artery and the ophthalmologist who made subsequent examinations confirmed this diagnosis. I do not know whether it is possible to differentiate which of these has produced this condition or whether it is necessary to combine them together. The aortic insufficiency of itself might have produced the embolus in the central artery or the same condition might have been produced by a syphilitically sclerosed vessel.

Dr. Barney Brooks: This case illustrates a fact which is too often overlooked by clinicians. The cornea and lens are peripheral organs, but the retina is a part of the brain, and therefore any disease of the retina should be seen from the viewpoint of the neurologist as well as the ophthalmologist.

D. SYRINGOMYELIA.—By DR. A. D. CARR.

C. W., male, age 38. Syringomyelia with cavitation extending the entire length of the cord and involving the hypoglossal nucleus in the medulla.

The onset of the process dates back to convalescence from meningitis when the patient was 14 years old. Weakness of the left arm and hand was noticed at this time. The course has been gradual until at the present time there is paralysis of all extremities with a marked degree of atrophy of the muscles, especially of the arms. There is atrophy of the right half of the tongue. The deep reflexes are absent except those of the right leg. Babinski's toe sign is present on the right. Deep sensibility is fairly well preserved. There is a widespread sensory dissociation over the body in which there is inability to recognize heat, cold and pain with light touch well recognized.

Skeletal studies show a marked rarefaction of the long bones and of the bones of the hands and feet. This is most marked in the parts longest unused. There is also a marked scoliosis of the dorsal and lumbar vertebrae.

Laboratory examinations are entirely negative.

DISCUSSION

Dr. Barney Brooks: This case interested me on account of the changes in the bones of the extremities. All bones of the extremities, particularly those of the left arm, show extreme bone atrophy of disuse; there is marked thinning of the cortex, increase in size of the medullary canals, and a general diminishing of the density of the bones. The extent of the changes in the bones in this case is directly proportional to the extent of lack of use of the various extremities. It is perfectly possible to pick out the extremities which are least used by examination of the X-ray plates. These changes in bone are not the result of direct influences of the nervous system, but are the result of lack of use.

2. DIFFUSE ADENOMYOMA OF THE UTERUS: CONDITIONS INFLUENCING ITS DEVELOPMENT.—By DR. O. H. SCHWARZ and DR. F. P. MCNALLEY.

A study of forty-nine cases of diffuse adenomyoma of the uterus has brought out several interesting points.

In the first place it shows that diffuse adenomyoma of the uterus in almost every instance is present

coincidentally with one or more other lesions. That these lesions are fundamental in influencing the development of this condition is quite apparent. It is rather difficult to say which one of these exerts a greater influence. It is quite evident that it rarely, if ever, occurs in a normal wall.

The lesion is explained chiefly on mechanical grounds. A parous uterus, and more particularly a uterus which shows the lesion of chronic subinvolution, favors the invasion of the mucosal elements. This invasion immediately causes a reaction on the part of the myometrium due, perhaps, either to local irritation or an attempt on the part of the myometrium to withstand this invasion; in some cases this results in a marked hypertrophy of the wall and in other instances this hypertrophy is not particularly striking in this selected group. The explanation that this lesion does not occur more frequently in the subinvolved uterus may rest in the fact that in these cases of subinvolution the endometrium is frequently atrophic and does not have the same tendency to penetrate that more active endometrium might exercise. The mechanism in cases of hyperplasia alone is explained on an entirely different basis. In this instance the hyperplasia of the endometrium is the primary lesion; subsequently, as a result of the persistent hyperplasia of the endometrium, a work hypertrophy results in the uterine wall which gives it its coarse structure and allows the mucosal elements to penetrate between the widened interstices. In cases of myomata alone the thickened uterine wall exists before the invasion of the glands and results from work hypertrophy in an attempt on the part of the uterine wall to rid itself of discrete nodules. That there may be an occasional case in which the explanation of the hypertrophy must be sought elsewhere is shown by the case in Cullen's series, and perhaps our explanation for these may prove satisfactory. As a whole, however, diffuse adenomyoma of the uterus occurs in every instance as a result of the presence of some pathological lesion of the uterine wall favoring its development.

That inflammation in the uterine cases is a definite factor in the production of the lesion as in the cases of tubal adenomyoma cannot be substantiated. Cullen has repeatedly remarked the same. In our series it was so inconspicuous that the number of cases was not even tabulated.

DISCUSSION

Dr. R. E. Wobus: Dr. Schwarz is certainly to be congratulated on the excellent presentation of this remarkable wealth of material. As he has pointed out, this condition must be differentiated from true adenomyoma and has, for this reason, been called adenomyosis. It will be recalled that even under normal conditions the endometrium extends here and there into the muscularis. Under certain conditions this ingrowth is simply exaggerated. The glands seem to grow into the interspaces between muscle bundles in the same way that mucosa lines a fistulous tract.

It is now definitely known that the physiological hyperplasia of the uterus, and especially the endometrium, is due to ovarian influence. There has been, therefore, a tendency to blame any hyperplasia of this organ on the ovaries. Even fibroids have been attributed to ovarian stimulation. So this overactivity on the part of the uterine glands has been ascribed to ovarian stimulation similar to that which produces glandular hyperplasia. Some investigators believe that the uterine glands grow into the thrombosed sinuses at the placental site after pregnancy.

Dr. E. L. Opie: I think that Dr. Schwarz has shown very clearly that so-called adenomyomata should be regarded in many if not in all instances

as hyperplasia rather than as neoplasms. In any discussion of this subject the adenomyomata which occur in the ovary, broad ligament, wall of the sigmoid, and, as Cullen has shown, in the umbilicus, must be taken into consideration. Aberrant uterine mucosa certainly occurs in the ovary and adenoma-like lesions might be derived from it. It is not possible to assume these adenomyomata outside of the uterus are identical with those which occur within the uterine wall.

Dr. Barney Brooks: Is there any relation between this and age? One cannot help being struck by the ages in these cases.

Dr. Otto H. Schwarz: I did not go into detail in regard to terminology because Strong in a recent paper has taken this subject up quite thoroughly. The term "adenomyoma," however, seems inappropriate when applied to the diffuse lesion in the uterus. There is another point which concerns the question, whether or not these lesions are to be regarded as tumors. It is a noteworthy fact that even in the early lesions of diffuse adenomyoma of the uterus connective tissue and muscle tissue are both present in considerable amounts, whereas in the very early discrete myoma, the seedling type, connective tissue is entirely absent, the growth being made up entirely of muscle cells. These pictures furnish a striking contrast. As regards the age, the disease is one of adult life and is rarely seen under twenty years of age. Out of the forty-nine cases which we studied, only one was twenty-one years of age. It is most frequently seen between the ages of thirty-five and forty-five.

3. OBSERVATIONS UPON THE FUNCTION OF THE ACCESSORY NASAL SINUSES AND THE MASTOID ANTRUM.—By DR. ARTHUR W. PROETZ.

Existing theories upon the function of the accessory nasal sinuses are unsatisfactory. As many as six or eight are entertained by various writers.

In the present instance the investigation was conducted not with any function in mind, but primarily as an observation upon the incidence and growth of the sinuses in relation to the growth of the individual.

The first outstanding fact encountered is the disproportionate growth between cranium and face, the latter growing very rapidly in proportion to the former. It was found that as these structures grow, two portions of a given bone were required to change their positions relative to one another after ossification had occurred. When two plates of a flat bone are called upon to separate, the one from the other, the intervening space might be filled with bone, fat, or other solid material, or it might be filled with air, which is obviously what takes place and which appears to account for the occurrence of each individual sinus in its place.

Variations in the lines of muscle tension brought about by disproportionate growth of head and shoulders, seems to account as well for the mastoid antrum and its associated cells. Study of the incidence and growth of the individual sinuses bears this out in each case.

This idea of the sinuses as being merely unoccupied spaces, and not functioning organs or their vestiges, is strengthened by certain apparently unrelated facts which can only be named and not discussed in this abstract, namely: absence of one or both sinuses; extreme variations in size in various individuals and on both sides of the same individual; extreme variations in various lower animals.

Conclusions: 1. The nasal accessory sinuses and the mastoid cells appear to be the result of a plastic rearrangement of the skull, necessitated by the dis-

proportionate growth of the face and cranium, after both are fully or partly ossified.

2. They are cavities left by the separation of two walls of a bone.

3. By the nature of their incidence they must communicate with the external air, via the nearest existing cavity from which they arise.

DISCUSSION

Dr. R. J. Terry: I have been much interested in hearing this paper of Dr. Proetz, the outcome of studies which he has carried on for some years. Some of the points just presented I have discussed with Dr. Proetz at different times. There is no satisfactory explanation of the paranasal sinuses from a functional standpoint, and I think the hypothesis given tonight has much to commend it. It is true that a few observations indicate the presence of some olfactory filaments in the embryonic frontal sinus, but at best their presence is of no more significance than that of a vestigial organ. I think one would be on safe ground in assuming that the sinuses themselves, especially those of the cranium, are rudimentary in man. Their effect in lessening the weight of the skull is slight and such a function is not called for in man, since the head is nearly balanced on the vertebral column which supports its weight. On the contrary, the large and extensive air cells in the elephant are of great importance in relieving the muscles and ligaments of the neck from the tremendous weight that would otherwise be imposed upon them by a solid cranial wall in addition to the great weight of the trunk and massive teeth. In reference to the development of the sinuses a correlation to the coming in of teeth which demands space and results in the precocious growth of the face in childhood and youth is a recognized fact. I think Dr. Proetz is to be congratulated on the trend of his studies and should be encouraged to pursue them in the domains of embryology and comparative anatomy.

Dr. I. D. Kelley, Jr.: If we study the ethmoid bone I believe we can learn much concerning its development and I believe we will find from this study that the accessory sinuses with their development and function are not as easily explained as the essayist has outlined. The ethmoid bone develops by the formation of many bony lamelli and interspaces, thus forming the cells of the ethmoid labyrinth; the most anterior lamella joining with the frontal bone to form part of the wall of the infundibulum of the frontal sinus and the posterior lamella joining with the sphenoid to form the boundary between the posterior ethmoidal and sphenoidal sinus, while two of the remaining lamelli descend free into the nose to form the bony part of the middle turbinate. My understanding of the development of the ethmoid bone is (and I have seen it demonstrated in cross sections of infantile and adult ethmoid bones) that we find these lamelli and interspaces definitely formed. The two lamelli descending free into the nose and by coalescence forming the middle turbinate is just as much a sinus of the nose as the ethmoid or sphenoid. We have no traction or pull in the development of this middle turbinate ethmoid cell that the essayist claims for the frontal and maxillary sinus, yet I believe we will all agree that the development of the middle turbinate is uniformly the same. I am speaking particularly of a normal middle turbinate containing no air cell. It seems to me if traction or the force of air produces the size of the sinus cavity then we should find all middle turbinates "bullous" or "cystic" which is the exception rather than the rule and considered an abnormal development brought about by a failure of the middle turbinate lamelli to coalesce. When we come to the

question of "bullous" or "cystic" turbinates we must recognize them as ethmoid cells. I do not believe that this theory can be applied to the ethmoid sinuses if it cannot be made to embrace the development of the middle turbinate and therefore cannot hold for the development of the frontal and sphenoidal sinuses. I believe much further study of this subject is deserved. Personally I feel that sinus development is caused by an unknown inherent force within itself modified only slightly by surrounding forces and I see no reason to doubt that a definite function might be attributed to them but is as yet unknown. The development of the ethmoid bone still makes me think that these sinuses probably represent rudimentary or involution structures in man.

Dr. Arthur W. Proetz: If I left the impression that this is a simple process, especially in the ethmoid cell, I did not intend to. Stresses are present there as elsewhere. When it comes to cysts of the turbinates, these are the result of a pathological process, with which my theory is not concerned.

4. EVIDENCE FROM THE MOUSE CONCERNING THE CAUSE OF THE SEXUAL CYCLE.—By DR. EDGAR ALLEN.

Cyclical changes have been recorded in the uterus of a number of mammals. In the mouse the vagina and oviducts undergo cyclical growth and degenerative changes. In the uterus during the growth phase the organ is hyperemic, distended with secretion, and lined by healthy epithelium. During the degenerative period no bleeding or discharge occur but epithelium and adjacent stroma is necrotic and subject to severe leucocytosis. The vaginal epithelium grows in depth from 5-7 to 18-20 layers and a typical stratum corneum develops. This is sloughed into the lumen and destroyed by leucocytic invasion. In the ovaries during the growth phase increasingly large follicles are present and reach their maximum at the end of this stage. From this point, ovaries fall into two classes: (1) those which ovulate and (2) those which do not ovulate spontaneously. In the first class developing corpora lutea of oestrus are present in the ovaries during the catabolic phase in the genital tract; in the second, no corpora are to be found, but follicles in progressive degrees of atresia and resorption are present.

These cyclical changes require only 4 or 5 days; the ovaries are necessary, for atrophy of the genital tract follows ovariectomy. To certain ovarian structures, follicles, corpora lutea, and interstitial tissue causative functions in the cycle have been attributed. Ovarian interstitial tissue is inconstant, therefore not a cause of such a universal phenomenon as oestrus. To the corpora lutea of oestrus have been attributed the functions of (1) inhibition of ovulation, (2) cause of the growth phase and also (3) the cause of the degenerative or menstrual phase of the cycle. Obviously, the latter two theories are incompatible. Mice not ovulating spontaneously have no corpora and still normal cycles may occur. Consequently corpora of oestrus are not essential to cyclic changes. When ovulation is spontaneous and occurs every four days corpora develop at the end of each growth period. These attain maximum growth at eight to twelve days. Consequently several sets of large corpora may be present at one time; still normal cycles and ovulation may continue. Under these conditions how can the corpora lutea bear any primary causative relation of the cyclic changes in the genital tract? They do not normally inhibit ovulation.

The main conclusion is: large follicles are the cause of growth, and their absence through ovulation or atresia, the cause of degeneration in the genital tract.

DISCUSSION

Dr. O. H. Schwarz: These definite histological changes which take place in the vagina in the sexual cycle of the mouse are very striking. The keratohyaline layer is well developed in the mouse and absent in the human. I am not familiar with any histological changes that take place in the human. Novak, in his recent monograph on menstruation and its disorders, takes up the subject in a very elaborate manner but does not mention any changes in the vagina. There has, however, been some work done on the changes in the degree of acidity of the vaginal secretion during various stages of the menstrual cycle. It has been shown by Graefenberg that the acidity of the vaginal secretion is greatest at the height of the premenstrual period. Engelhorn has shown that this acidity is also greater during pregnancy.

Dr. R. J. Terry: The work which Dr. Allen has briefly presented this evening is the result of a very careful study that has been in progress for the past two years. The observations in the experiment were made on a colony of mice of known stock, under conditions very carefully controlled. They comprise an important contribution to our knowledge of the phenomena of oestrus in the rodents. As stated by Dr. Allen the phenomenon of oestrus is widely distributed among mammals and the structural changes that have so far been observed are so similar that it is not unreasonable to suppose that like changes may be discovered in man comparable to those which have been seen in the lower orders of mammals. It is into this field, of course, that further extension of studies of the oestrous cycle should be carried. In view of its importance it is certainly to be hoped that this may be found possible.

Dr. R. E. Wobus: It is very striking to note the similarity between this exfoliation of the vaginal epithelium and a similar exfoliation of the menstrual endometrium in woman. It will be recalled that the basal layer remains constant, while the spongy and compact layers which are formed during the cycle are cast off at menstruation. It is also interesting to note that during the premenstrual stage there is quite an infiltration of lymphocytes in the human endometrium.

Dr. Edgar Allen: It is probable that cyclic growth and degeneration changes are present in the human vagina, although a cornified layer does not normally develop. This difference may be explained by two factors: (1) In rodents, the vagina opens directly on the vulva without the protection of labia; (2) constriction of the cervix allows great distension of the uterus by secretion and yet the vaginal epithelium may be dry. It would be interesting if proven in the human being that a new vaginal wall is produced each month.

5. AN EXPERIMENTAL AND CLINICAL STUDY OF THE VALUE OF BLOOD PRESSURE READINGS IN CASES OF ACUTE CEREBRAL COMPRESSION.—By DR. JULIAN Y. MALONE.

Thirty experiments were performed on dogs and rabbits, under ether. General intracranial pressure was applied with a canula inserted into the subdural space. The heights of intracranial pressure, blood pressure, and respirations were recorded. In dogs the response of the medullary centers to general increased intracranial pressure was studied under varying degrees of depth of anesthesia, with one vagus cut, with both vagi cut or cocaineized, and with motor vagal endings paralyzed by atropine. In rabbits the same response was studied under varying degrees of anesthesia, when the depressor nerves were cut,

when both vagi were cut and when both vagi and depressors were cut. It was found that under light third stage anesthesia medullary compensation was always present, but under deep anesthesia it was either very slight or absent. The corneal reflex and reaction of pupils to light was present under light anesthesia but absent under deep anesthesia. On cutting the vagi in dogs there was an increase in compensation while it was absent after paralyzing the vagal endings with atropine. When the depressor nerves were cut and the vagi intact there was an increase in the compensation which did not further increase upon cutting the vagi also. Therefore, the depressor nerve fibres in the vagi carry inhibitory impulses to the vasomotor center inhibiting the blood pressure compensation in case of increased intracranial pressure.

A summary of 44 cases of acute compression from Dr. Sachs's service in Barnes Hospital showed that when the reaction of the pupils to light was active, blood pressure compensation was present, and 13 per cent. died in spite of decompression; when the reaction of the pupils was sluggish, blood pressure compensation was fair and of short duration, 44 per cent. died; when the reaction of the pupils was absent there was little or no blood pressure compensation, 61 per cent. died. Therefore, blood pressure is a good criterion of the degree of cerebral compression when the pupils react to light and the prognosis is fair, but when the reaction of the pupils is absent the blood pressure is of no value in estimating the degree of cerebral compression. The condition of the pupillary reflexes and the ability of the medullary centers to compensate ran parallel in the experiments and the clinical cases.

DISCUSSION

Dr. E. Sachs: This experimental work of Dr. Malone's, coupled with the clinical work is, I think, of great significance and should deserve considerable attention. When Dr. Cushing first published his observations some 20 years ago, the examination of blood pressure came into general use as a means of determining what the treatment of cases of intracranial injury should be. Dr. Malone has pointed out in which of these cases there is no rise of blood pressure even though the intracranial pressure may be markedly increased, therefore the blood pressure cannot always be used as a guide in deciding the course of treatment.

Dr. Joseph Erlanger: The results of the study which Dr. Malone has reported are of interest not alone in respect to prognosis in special human pathology, but also in respect to the success or failure of a certain experiment regularly demonstrated as a part of the course in physiology. There is one demonstration which ordinarily can be counted upon to succeed, and that is the elevation of the arterial pressure in response to experimental increase in intracranial tension. Occasionally, however, even this experiment fails. As we look back over our experience in the light of what has been reported this evening it seems clear that these occasional failures are due to an overdose of ether.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Sixth Meeting, March 13, 1922

1. EXHIBITION OF CASES.

A. ENDOCARDITIS.—By DR. D. F. KUDNER.

Female; age 15. Admitted to Barnes Hospital, February 16, 1922.

Chief Complaint.—"Cold in head," chills, fever, weakness, pain in flanks, and stomach region. *Family history* negative. *Past history* was negative except for frequent colds, growing pains and diphtheria two years ago. Patient has lost ten pounds this last summer.

Present Illness.—Patient felt tired for past two weeks. Before entrance had severe "head cold," felt weak and dizzy, and vomited. February 5 had severe chill followed by high fever, 104 degrees. Has had two night sweats since onset. February 11th had dull, aching pain in right foot, has vomited several times since onset. At entrance she complained of dull, aching pain in both flanks.

Physical Examination.—Temperature 40; pulse 100; color was pale; adenoid facies; fissured lips; thyroid palpable, but not greatly enlarged. Chest is negative; heart soft systolic murmur at apex, transmitted toward axilla; no thrills; pulmonic second sound louder than aortic; systolic murmur heard in pulmonic area. Blood pressure 110/65. Abdomen: Lower pole of left kidney felt. Small red spot size of quarter on the inner surface of right foot; this was tender.

Laboratory Findings.—Red blood cells 4,000,000; white blood cells 18,000; hemoglobin 50 per cent.; polymorphonuclear 82 per cent.; urine contained albumin, many white blood cells, hyaline and granular casts and many yeast cells. Wassermann was negative. Non-protein nitrogen was 60 mg. per 100 c.c. of blood. P. S.: Phthalein was 20 per cent.; sputum was negative for tubercular bacilli. Many pneumococci found.

Repeated blood cultures were negative. Repeated urine cultures were negative, except for yeast cells. Electrocardiograms negative. Cystoscopic examination was negative except for few white blood cells, and yeast cells in both kidneys, and smear from the right kidney showed chains of streptococci.

Course in Hospital.—February 22, patient complained of pain in left upper quadrant and spleen was palpable for first time, subconjunctival hemorrhages were seen in left eye. Few days later the patient developed diplopia and paresis of eye muscles.

Transfusion, 500 c.c. of blood given on the 28th. The non-protein nitrogen steadily rose until March 2, 1922, when it was 125 mg. per 100 c.c. of blood.

Fluids were forced to the extent of 5,000 c.c. per day and the N.P.N. gradually returned to almost normal.

The case was presented because of the clinical signs of endocarditis with negative blood cultures, and because of the feature of continuous presence of yeasts in the urine.

DISCUSSION

Dr. W. H. Olmsted: There are several things of interest about this case. The patient denies rheumatism, yet admits that she had growing pains, so diagnosed by a doctor. The spleen was not palpable when she entered the hospital. The temporary loss of kidney function, which we have learned takes place in cases with signs of infection of the blood by bacteria, shows rather profound kidney disturbance.

Dr. R. A. Kinsella: The point which I think is very interesting about this case is the absence of proven bacteriemia. Repeated blood cultures have been negative. The patient presents the clinical characteristics of bacterial endocarditis, in fever, very loud heart murmur, enlarged spleen, and peculiar "café au lait" color. In spite of all these appearances, there was a negative blood culture and we have no proof. We have proven that she has streptococci in her left kidney. It is possible that some of

the tumor mass in the left side may be associated with the left kidney. Another finding is the yeast. This and the streptococci are the things that are being studied at the present time to determine whether the yeast is invading and to make sure that the streptococcus is not in the blood.

B. CHRONIC MYELOGENOUS LEUKEMIA.—By DR. S. JOHN HOUSE.

This woman, aged 62, came to us with a typical clinical and blood picture of chronic myelogenous leukemia. The white blood count was 100,000, the basal metabolism about 25 per cent. increased. She had been treated with benzene (benzol) exclusively, having received in all about 1,000 drops, extending over a period of three weeks. Medication was stopped when the white blood cell count reached 18,000, having been reduced 88 per cent.

The patient's general condition has improved and the spleen has decreased considerably in size.

An increase in basal metabolism is usually found at some time in all cases of leukemia and depends not so much upon the total white blood cell count as upon the presence of very immature forms, i. e., myeloblasts in the blood.

Benzene (benzol) is a dangerous drug and individual susceptibility does occur. Hence it should be used cautiously and with the appearance of the first symptoms of intoxication, i. e., vomiting, increased weakness and anorexia, should probably best be discontinued until the white blood cell count again begins to go up.

2. THE PATHOLOGICAL CHANGES IN MUSCLES RESULTING FROM DISTURBANCES IN CIRCULATION.

—By DR. BARNEY BROOKS.

From an experimental study of the pathological changes in the muscles of extremities in which various methods of obstruction of the circulation of blood had been used, it was found:

1. Permanent obstruction of arteries may lead to (a) no anatomical or physiological change, (b) a condition of ischaemia, (c) gangrene. It was surprising to find how small an arterial supply to an extremity was consistent with apparently perfect preservation of the vitality of the extremity. If the circulation in the arteries was much decreased the extremity showed a condition of ischaemia which was characterized by a rapid fatigue of the muscles. In this condition there was demonstrable anatomic change. If the circulation was further diminished gangrene occurred. The necrosis of the skin always was more extensive than the deeper tissues including the muscles. Muscles become wholly necrotic or preserved completely their anatomic characteristics. It was not possible to reduce the circulation of a muscle to such a point that it was physiologically dead and anatomically living. Furthermore, fibrosis of the muscle never followed arterial occlusion.

2. Temporary complete anemia of an extremity causes more extensive damage to muscles than to skin. This also never produces a fibrosis of muscles.

3. Occlusion of the veins to a muscle universally leads to the development of an acute inflammatory process which ultimately results in a complete transformation of the muscle into fibrous tissue. This change only takes place if the arteries are unobstructed.

From these observations it seemed that the condition known clinically as ischaemic contracture was most likely due to obstruction of veins rather than arteries, and that no process which was accom-

panied by signs of acute inflammation could be the result of anemia of the tissues.

DISCUSSION

Dr. E. Sachs: I was just wondering whether or not Dr. Brooks finds that the condition of these animals with arterial occlusion was not the same as what is seen in intermittent claudication. The circulation is adequate when the animal is not exercising but when it exercises spasm occurs. The most important part of the paper, it seems to me, is that Dr. Brooks has given us a definite theory for this very important condition. He does not offer a cure, it merely emphasizes the great danger of not watching an extremity when it is put up in any sort of bandage. The same thing could be produced by an ordinary gauze bandage as well as by splints or plaster of Paris.

Dr. A. E. Strauss: The experimental work of Dr. Brooks is another confirmation of clinical observation which is familiar to all of us. We have all seen patients with arteriosclerosis in whom we believed that the call for extra blood supply of effort has resulted in symptoms similar to those described by Dr. Brooks in dogs with partial ligation.

With chronic edema in man we practically never get necrosis of tissue, no matter of how long standing the edema.

3. AN EXPERIMENTAL STUDY OF METHODS FOR BRIDGING NERVE DEFECTS, WITH A DESCRIPTION OF A NEW METHOD OF AUTO-TRANSPLANT (AUTO-AUTOTRANSPLANT).—By DR. ERNEST SACHS AND DR. JULIAN Y. MALONE.

The present research was undertaken in an effort to determine the best method of bridging defects in nerves when it was impossible by all known methods to do an end to end suture. A number of different methods were tried, such as tubes of foreign bodies and fascia, but all were discarded except three, namely, anastomosis of the central and peripheral ends of an injured nerve into longitudinal incisions made in a normal nerve; (2) anastomosis of central and peripheral ends of an injured nerve to flaps cut in the same quadrant of a normal nerve; (3) autotransplant of half the central end of the injured nerve, the length of the segment removed being just long enough to bridge the defect (auto-autotransplant).

The results of these experiments were studied physiologically and anatomically, at periods varying from two days to five months following operation. The physiological tests consisted in stimulating the nerve trunk on either side of the repair and noting contractions of muscles and the reflex stimulation of the respiration. The anatomical studies consisted of silver pyridine stained sections cut in cross section or longitudinally in various portions of the repaired nerves.

Our studies showed that any type of tissue other than nerve tissue used to bridge a nerve defect was unsatisfactory. Both the auto-autotransplant and the double implantation of the ends of the injured nerve into the longitudinal slits in the normal nerve showed complete regeneration in about the same time after injury. The double implantation method showed that the procedure could be carried out in dogs without interfering with the function of the healthy nerve and that when the gap was 2 cm. or less most of the fibers from the central end grew into the peripheral end, but when the gap was larger

than this fewer fibers of the central end reached the peripheral end of the injured nerve, but always some fibers could be traced from the central to the peripheral stump. As the maximum source of new axis cylinders is the desirable thing the central end should always be implanted when possible. This procedure, however, is impracticable when the severed nerve is larger than the nerve into which an implantation could be done or when no adjacent healthy nerve is available.

The double anastomosis to flaps in a normal nerve has no advantages over the double anastomosis into slits in the normal nerve and has the disadvantage of doing more injury to the normal nerve. The method of auto-autotransplant has the advantage that no normal nerve has to be sacrificed and that the entire procedure can be carried out in one operative field, the results being at least as satisfactory as those obtained with the cable auto transplant.

In every type of nerve suture no matter how perfect the approximation is there are whorls of axis cylinders formed at the suture line so that it is impossible to expect sensory fibers from the central end to reach their corresponding sensory channels in the peripheral end and the same holds true for motor fibers. Consequently, though it is desirable to approximate corresponding funiculi as nearly as possible it is not essential and in every case re-education is necessary.

DISCUSSION

Dr. Barney Brooks: I would like to ask if the reduced number of nerve fibers to the muscles makes this muscle weaker proportionally?

Dr. E. Sachs: We haven't any observation on that. On these things, Dr. Gasser can answer you much better than I. We haven't any measurements on the size of the muscle.

4. STATISTICAL STUDY OF THE SECOND THOUSAND CASES DELIVERED IN BARNES HOSPITAL WITH SPECIAL REFERENCE TO SCOPOLAMINE-MORPHINE SEMINARCOSIS.—By Drs. O. S. KREBS and L. R. WILSON.

A statistical study of the second thousand cases delivered in Barnes Hospital was made to bring out particularly the value of scopolamine seminarco- sis in the series and to point out, if possible, any peculiar by-effects which the procedure may have produced, and more especially any effect which might have led to an increased fetal death rate.

In a previous publication in the American Journal of Obstetrics, December, 1918, Dr. Henry Schwarz reported a fetal mortality of 5.6 per cent. for the first thousand cases delivered at Barnes Hospital. This estimate was made on the basis of all viable children, twenty-eight weeks' gestation and over, and not on the basis of a birth weight of 2,500 grams, which is usually considered. Furthermore, he mentions that the seminarco- sis was successful in 80 per cent. of the cases, and that the procedure was followed in three hundred and ninety-three of the thousand cases. The technique which was described by Dr. Schwarz in detail in the above-mentioned publication is still followed at the present time.

Our results from scopolamine or hyoscine-morphine seminarco- sis gave perfect results in 85.3 per cent. of the cases, partial success in 5.2 per cent., perfect for pain in 4.2 per cent., and no results in 5.07 per cent. It is of interest here to note that of 158 cases receiving the drugs, in 144 there was

no fatigue or exhaustion noted following the delivery. It has been only a recent feature to question the patient about fatigue so a definite statement is only available in that number of cases.

The incidence of scopolamine or hyoscine seminarco- sis in the 1,000 cases is as follows:

White primiparae—321 cases or 78 per cent. of white primiparae.

Black primiparae—23 cases or 52 per cent. of black primiparae.

White multiparae—176 cases or 35 per cent. of white multiparae.

Black multiparae—12 cases or 25 per cent. of black multiparae.

Primiparae—344 cases or 75 per cent. of primiparae.

Multiparae—188 cases or 54 per cent. of multiparae.

White cases—497 cases or 54 per cent. of white cases.

Black cases—35 cases or 38 per cent. of black cases.

In the series the fetal mortality in all cases of 24 weeks' gestation or over was 5.1 per cent.; in all infants over 2,500 grams, 2.16 per cent.; in the pavilion practice the figures were 2.08 per cent. and .73 per cent. for the first and second groups, respectively. These figures may be compared to those of 5.6 per cent. for the first thousand cases delivered at Barnes Hospital, which is estimated on the basis of all viable children. Williams' figures on the first 10,000 cases delivered at Johns Hopkins Hospital is 3.71 per cent., basing the mortality in all children weighing over 2,500 grams.

The study of the second thousand cases shows quite conclusively that, in our hands, there is no appreciable difference in the final results as regards fetal mortality; in fact, our figures are slightly better in cases where scopolamine was used than where it was not used. Also it must be impressed that the method was used largely in primiparous patients and where prolonged labors were anticipated in multiparae. Attention must also be called to private pavilion cases where 67 per cent. received scopolamine, and where the infant mortality for those above 2,500 grams was unusually low, .7 per cent.

DISCUSSION

Dr. G. D. Royston: The report submitted by Dr. Krebs encourages us in our belief that we can deliver the parturient woman by this method safely and with less pain than by any other means employed up to the present time. The work of Gauss in 1906 and Otto Schwarz with Dr. Dennis Jackson in 1915, showed us the safeguards to be observed. Schwarz showed that scopolamine in moderate dosage had no definite effect upon either heart or respiration and that all dangers connected with the method depended solely upon the amount of opium used. Clinically the dose of one-eighth to one-sixth grain of morphine is practically eliminated by the end of four hours following its administration. During the past six years I have personally sat by the bedside of 407 patients during the entire duration of their labors, 245 of them receiving scopolamine or hyoscine-morphine. Practically in all of the more difficult or complicated cases, scopolamine or hyoscine-morphine was used. Among these 245 cases, seven babies weighing more than 2,500 grams were lost; one child weighing 3,735 grams, was a normal delivery, had two coils of cord tightly around the neck which might have caused death, or it might have been due to a prolonged tetanic uterine contraction which followed 5 minims of pituitrin; the second patient was in labor more than thirty hours, para 1, frank breech; during

delivery the head became extended and after futile attempts at manual extraction a forceps extraction of the after-coming head fractured the occipital bone and the child died a few moments later; the third child lost had a prolapsed cord which escaped notice until a sudden cessation of the fetal heart sounds indicated the necessity for a rapid delivery, when a loop of cord was discovered compressed alongside of the head; baby No. 4, lost during delivery, was from a thirty-three-year-old primiparae, in labor two days, membranes ruptured early during labor. The remaining three babies lost were all from patients after long labors, two of which were delivered by high forceps applications. These three babies died during the first week after delivery from cerebral hemorrhage, one of them despite operation for the relief of the hemorrhage.

Among the 407 patients in my series the remaining 162 who did not receive scopolamine-morphine, were given nitrous oxide, chloroform, ether, or occasionally no anesthetic of any kind. Among these there were four fetal deaths, all among the normal deliveries. One child was born with three loops of cord around the neck; asphyxiated notwithstanding good fetal heart sounds 20 minutes before delivery—the entire duration of labor in this case was about four or five hours, mother para 3. The second child lost was also from a para 3, normal delivery, short labor; cerebral hemorrhage with symptoms first appearing on the fourth day after delivery. The third child lost had a spina bifida and died some days after leaving the hospital—autopsy findings disclosed marked hydrocephalus and meningitis. The fourth child lost occurred in the case of a mother with a respiratory infection and a temperature of 105 at the onset of labor which was of two days' duration; fetal heart sounds could not be heard for 24 hours before delivery.

Naturally any innovation in obstetrics is subjected to a most critical scrutiny and all untoward happenings are attributed to the methods used.

Among my series to whom scopolamine-morphine was given there were two face presentations, four breech, two high forceps applications and two placenta previa cases, with no mortality among them. No amount of theorizing or observation of any small number of cases is sufficient to justify such criticisms and we have a sufficient number of observations here in Barnes Hospital to convince us of the safety and efficacy of this means of alleviating the sufferings of child-bearing.

Dr. O. H. Schwarz: I would just like to say a word concerning fetal mortality. Dr. Krebs tells us that in these cases as a whole there was a fetal mortality of 2.7 per cent. for babies weighing over 2,500 grams. In those cases which were on the Private Pavilion who, during labor, received scopolamine-morphine, there was a fetal mortality of less than 1 per cent. The figures taken as a whole compare very favorably with the statistics obtained at Johns Hopkins in the first series of 10,000 cases in which the fetal mortality was, figuring on the same basis as above, 3.7 per cent. The obstetrical service at Johns Hopkins is noted for its conservative methods. It is quite apparent from the above comparison that our fetal mortality has not been increased and compares very favorably with the Hopkins' statistics.

There has been some criticism that the method requires more frequent interference than where it is not employed. It has been shown by Gauss that forceps deliveries were necessary in only six to seven per cent. in his large series. We, however, employ a method in delivery irrespective of whether or not the patient has had scopolamine; it is particularly employed in the primiparous woman. This method consists of a forceps application after the

head has definitely appeared and is completely rotated. After a dilatation somewhat similar to the method Potter uses in his versions, the head is lifted over the perineum. It has been suggested by some that on account of the somewhat prolonged second stage the incidence of intracranial hemorrhage might be increased. As a factor in the production of this lesion, overlapping of the cranial bones followed by sudden release of pressure is given as a predisposing factor. In a patient who is in the second stage of labor and who is using every effort to bring about further advance of the fetal head, at the time that the contraction is at its highest, she is using every additional means to bring on further progress. When the contraction subsides the patient becomes suddenly relaxed and a considerable amount of pressure is taken off the advancing head. In cases under scopolamine this marked contraction and relaxation does not occur to such a great degree, but it is advanced merely by the pressure resulting from the uterine contraction.

Dr. O. S. Krebs: There has been considerable opposition to the administration of scopolamine in obstetrical practice by the medical profession in St. Louis. This opposition has not been based, in most instances, on personal experience with this method and has not been confined to the obstetricians. Some of the men who are loudest in their disapproval of the method were invited to be present this evening and it is quite disappointing that not any of them are here.

PROCEEDINGS OF ST. LOUIS NEUROLOGICAL SOCIETY

March 27, 1922, City Hospital No. 2

President, Dr. Ernest Sachs; Secretary, Dr. L. B. Alford

REPORTS OF CASES.

A. A CASE OF TRAUMATIC CORD LESION.—By DR. THEODORE ROMEISER.

This case is characterized by spastic paraplegia with adductor spasm, marked trophic changes and swelling below knees and loss of sensibility to touch, pain and temperature of lower extremities, with a superjacent zone of hyperalgesia corresponding to the tenth dorsal segment. Bilateral wrist sign was noted in association with bilateral Babinsky.

DISCUSSION

Dr. Sachs: The sensory level as shown by the examination would indicate that the lesion was at the level of the tenth dorsal segment and this segment of the cord lies opposite the seventh or eighth dorsal vertebra. I therefore suggest that an X-ray picture should be taken showing the vertebral column in the mid-dorsal region.

Dr. Hoge: The sudden onset of paraplegia after a fall and its spastic character indicate a trauma to the cord somewhere above the lumbar enlargement. Notwithstanding the negative Wassermann, I would recommend the therapeutic test of active specific treatment.

Dr. Fry: I quite agree with Dr. Sachs that it would be well to have an X-ray picture to include a higher level of the thoracic spine as there were sensory symptoms to indicate an involvement higher up. A hematomyelia is more apt to occur in the cervical and lumbar regions where there is greater flexibility than in the rigid dorsal region. Hence in the dorsal region a lesion of the vertebrae should be looked for very carefully. It is not impossible in a case of this kind that there may have been two lesions; one in the upper thoracic and another in

the lumbar portion of the cord, the latter especially being an internal lesion or a hematomyelia producing the peculiar trophic condition in the feet and legs.

Dr. Romeiser (closing): With reference to the trophic changes in the lower extremities, a similar case, following a fall from a height, showing persistent non-pitting swelling below the knees and limited thermanesthesia, probably hematomyelic, was reported.

B. A CASE OF HEMIPLEGIA WITH COMPLICATIONS.—By DR. THEODORE ROMEISER.

This is a case of hemiplegia with epileptiform seizures, transitory psychosis, with loss and perversion of thermal sensibility on the paralyzed side in a young luetic woman with a B. P. of 200.

Dr. Stevenson: Dr. Romeiser's case of hemiplegia may be one of paresis with a focal lesion in the posterior part of the internal capsule involving the optic thalamus. The patient has a psychosis, a marked tremor of the tongue and a history of lues. In addition to her hemiplegia she has hyperesthesia of half of the body and the peculiar reaction to cold on that side which is seen in cases of thalamic lesion.

Dr. Romeiser (closing): The lesion was regarded as a capsular hemorrhage, involving both motor and sensory parts.

2. THE MODERN INTERPRETATION OF CHOREA.—By DR. FRANK R. FRY.

The word chorea is usually used to designate a symptom-complex of certain motor and psychotic symptoms. In order to be more precise we frequently speak of the malady as juvenile or Sydenham's chorea. In this sense it has been described as a familiar syndrome for very many years. Because of this general familiarity there is no question about what is meant by the "choreic movements," at least in typical instances of the disease. To a less extent this is true also of the psychotic signs. However, there are many instances where the symptoms are so far from typical as not to be readily recognized. This fact, too, is one of old observation. From the most ancient down to the most recent studies the literature shows how much careful attention these motor phenomena have been receiving. The question of their anatomical origin and their broad diagnostic significance, the question of the occasional concurrent appearance of other motor phenomena with the true or "genuine" choreic movements, have been perplexing and have incited for many years quite a constant effort to determine the etiology and pathology of this fascinating syndrome.

The widespread epidemics of so-called lethargic encephalitis within the last few years in this and other countries are furnishing a constantly increasing quantity of clinical and pathologic material. From the extensive study of these materials we are gaining instructive and truly illuminating data concerning the functions of certain portions of the encephalon that have been, to say the most, problematic. In the clinical reports of these cases of epidemic encephalitis, reference is often made to choreic and choreiform manifestations among the various interesting motor phenomena observed in the great majority of cases. Also it has been remarked not infrequently that the psychotic symptoms appearing in some of these patients, remind us of some of the psychotic phases of some of our cases of chorea. In other words, we may say that certain cases of epidemic encephalitis in their mental and motor reactions present phases which recall phases that we have observed in cases of chorea.

In view of these clinical observations it becomes interesting to turn to the pathologic side of the study. In this study the mid-brain ganglia are the regions of special interest and more especially the corpus striatum. The functions of this structure are thus defined by a recent writer (Ramsey Hunt): "The corpus striatum may be regarded as a higher co-ordinating motor center which presides over the realm of automatic and associated movements. It stands in close relationship with the important correlating sensory station, the optic thalamus, and through this structure with the peripheral sensory mechanism, the cerebellum and the cerebral cortex." Speaking of its pathology, he says: "It is clear from the syndromes of Vogt and Wilson that lesions strictly confined to the corpus striatum can be the cause of rigidity and tremor of the paralysis agitans type, tonic and clonic spasms, choreiform and athetoid movements."

By Hunt and others the territory of the striatum has been mapped according to the functions of its various parts. It has been found that certain syndromes (so-called diseases), each with its own characteristic motor features, are due to types of progressive degenerative processes which select more or less definitely, in each instance, different localities in the striatum. For example, the most familiar of these syndromes is paralysis agitans or (Parkinson's disease) which we now know is due to a progressive degeneration of the globus pallidus (in the postero-central portion of the striatum). In other syndromes, as Wilson's disease and Madame Vogt's double athetosis, the degenerative lesion is not so definitely limited to one physiological portion or system and hence in different cases of the same syndrome we find the motor phenomena which characterizes them present in different proportions or degree. In these descriptions of motor phenomena certain of them are considered as primary (or fundamental) and as having their origins in lesions limited to definite systems of neurons in the basal ganglia. In this sense (more or less) we employ the terms, athetoid, myoclonal, choreiform movements, rigidity, tonic and clonic spasm, and possibly others; and, as we have already stated, these appear in certain disease syndromes in various combinations. In cases of epidemic encephalitis they appear in many combinations and phases, hence we see these cases described as presenting Parkinson phases, myoclonal phases, choreiform phases, tremor, rigidity, etc., in addition to the well-known bulbar symptoms, the paralytic and the psychotic phenomena. This disease is due to a virus which evidently has a selective affinity for certain brain structures. On account of modifications, which we may speculate about but do not know, the method of attack varies (as in all other infections) in the different cases. The striatal region is frequently attacked and hence these interesting motor phenomena.

With the foregoing in mind we find a very complete analogy on which to base a belief that chorea (the choreic syndrome) is due to a type of encephalitis similar (but not identical) in its reactions to those of "epidemic encephalitis." In further support of this belief may be mentioned certain facts of moment. First, it seems now quite definitely established that there are several types of exudative inflammations of the brain which are infectious in origin. Secondly, in the most recent pathological study of well authenticated acute cases of Sydenham's chorea, there have been found in the brain cortex and neo-striatum inflammatory reactions bearing a close resemblance to those found in cases of epidemic encephalitis. For many years the belief that chorea was due to an infection of

some kind has been quite general, and it is only now that a reasonable basis for its pathology is appearing.

In studying more closely the psychotic side of choreic cases one is impressed that the parallelism between them and known encephalitic cases may be carried a good way.

The writer cited several cases, the reports of which he had published in former years. In one of these there were associated with the choreic movements marked athetoid movements in a boy of 14 years. In another instance, a girl of 14 years, the choreic movements were accompanied by myoclonal movements which persisted for three weeks, the choreic movements lasting for some weeks longer. These were very evidently cases of juvenile chorea which entirely recovered. Another case was a very unusual one, a hemichorea, in a woman of 69 years of age, of a severe juvenile type. It followed an attack of influenza which was then (thirty years ago) epidemic in St. Louis. She was continuously under observation for two and a half months. During the height of the attack she was very ill for several weeks with high temperature and rapid pulse and considerable delirium. She finally recovered completely, and no residual symptoms remained on the hemichoreic side or elsewhere.

DISCUSSION

Dr. Stevenson: Dr. Fry's paper has interested me very much. Dr. Ramsay Hunt has led us to consider (and I think with much evidence to support his thesis) that such disturbances of mobility and muscle balance as we see in chorea, paralysis agitans and athetosis, may be the result of the type of lesion present in the corpus striatum. If the large motor cells of globus pallidus type alone are involved we get Parkinson's syndrome; if the smaller motor cells of the region are selected, we get the type of movement seen in Huntington's chorea. If the lenticular nucleus is more extensively involved, as in Wilson's disease, we get athetosis. It is not unlikely then that the movements seen in chorea of children are due to an infection which has a selective action on the small motor cells of the corpus striatum.

Dr. Alford: I desire to mention the remarkable fact that in Dr. Fry's clinical observations on chorea nearly thirty years ago there was a forecast of the intimate relation between tremor, chorea and athetosis recently shown to exist by Gordon Holmes and others. In certain prolonged cases of chorea I believe a functional element becomes engrafted on the primary process. The age of the patient and the fact that he is the center of attention favor the development of a functional state. The chorea of pregnancy is a remarkable and terrible condition. The etiology is difficult to understand for usually there is a history of Sydenham's chorea often as long as fifteen or twenty years before. The choreic movements are intense. It is said that if they are kept entirely in abeyance for as long as 48 hours with chloral and morphine, recovery will follow. I have seen one case recover after such treatment. In a case at the City Hospital recently, however, it was not possible to suppress the movements by this means and the patient died.

Dr. F. M. Barnes, Jr.: Dr. Fry's presentation has been very interesting, but one phase of it is particularly striking in demonstrating our changed attitude toward the possible underlying causes of chorea. In one of his cases studied thirty years ago, although reference to the "grippe" was made, the predominant attitude toward the situation is shown in the diagnosis of chorea. Some few months ago I saw a patient similar in most respects clini-

cally to this one of Dr. Fry, but here a diagnosis of lethargic encephalitis was made with chorea as a manifestation. In other words, we are coming to recognize in the strikingly expressed motor disturbance, the chorea, not the disease itself but look upon this as a part of the clinical symptomatology of the underlying focus of disease.

Dr. Romeiser: An instance of characteristic choreic movements associated with a lethargic encephalitis syndrome is recalled, the diplopia with persisting lethargy differentiating the clinical picture from Sydenham's chorea.

Dr. Fry (closing): I feel indebted to Dr. Stevenson for the manner in which he further delineated the respective functions of the different portions of the basal ganglia and also the connection of the red nucleus with tremor manifestations. The function of the red nucleus becomes more interesting and more evident as we better understand the function of other regions with which it is associated. Dr. Alford's suggestion of a "hang-over" of habit as a sort of aftermath of choreic cases is very pertinent. I can remember seeing cases where I felt unable to determine whether behavior of this kind was a mere mental thing or whether it was possible that there still remained some organic residual to account for the movements. I believe it is very important to determine this point in cases but not always easy to do so.

BUCHANAN COUNTY MEDICAL SOCIETY

Meeting of March 1

About sixty members were present at the meeting at the St. Francis Hotel. Dinner was served at 7:30 p. m.

Judge T. B. Allen addressed the Society on "The Doctor As a Witness," which was very instructive and his splendid presentation of the subject was thoroughly enjoyed by all.

President F. H. Ladd presided.

Adjourned 10 p. m.

Meeting of March 15

The meeting was called to order by Dr. Ladd at 8 p. m.

The applications of Drs. Lloyd James Thompson and Walter Roger Moore were read and referred to the censors.

Dr. John M. Bell presented his paper on "Early Morning Abdominal Pain." Discussion by Drs. Potter and Senor.

Dr. J. F. Owens presented his paper on "The Endocrines in Gynecology." Discussion by Drs. Bell, Carle, Potter, H. K. Wallace, Senor and Sampson.

Attendance, 29.

O. C. GEBHART, M.D., Secretary.

Meeting of April 5

The regular meeting was called to order by President Dr. F. H. Ladd, at 8 o'clock p. m., at the Chamber of Commerce.

The bond issues proposed for the City of St. Joseph, special election April 11, were discussed.

Motion by Dr. Elam that the Society get behind all the good bond issues, especially the one relating to the hospital for contagious diseases, and push them to a favorable termination was duly seconded. Dr. Jacob Geiger offered an amendment that the president appoint a committee to further this purpose; seconded. Amendment and motion carried.

The following committee was appointed: Drs. Morton, chairman, McGill, Boteler, Elam, Royle and Beck.

The following resolution was presented and unanimously adopted: The Buchanan County Medical Society extends to its secretary, Dr. Oliver C. Gebhart, its profound sympathy for the great bereavement which has come to him in the death of his wife. Mrs. Gebhart possessed all those qualities which are required to make a doctor's wife a true helpmate. She was possessed of that spirit which is willing to sacrifice self in order to serve; which denies itself to benefit others. She had a quiet, unflinching courage which ever supported her husband in the duties of his professional work and sustained him through all the dangers of service by sea and land in time of war. This spirit rose to the high point of self-abnegation to such an extent that when she herself was at death's door and the call to arms came to her husband, she bade him go with cheering words upon her lips and a smile upon her face, believing that this was the final parting, and that even though the chance of war might spare her husband, she herself would certainly die before his return. By such a course she made it possible for him to render to his country the distinguished service which he did. Who shall say that she is not a hero of the Great War? She was a woman of heroic mould and gentle Christian character. Upon such our Christian civilization is builded, and upon such our patriotism rests secure. We therefore desire to express our appreciation of such a doctor's wife and to assure Doctor Gebhart that every member of this Society holds him in sympathetic remembrance.

It was reported the Telephone Company is serving notice of change of numbers for several of the physicians. The committee directed to take up the matter of extra charge for telephone directory listings was instructed to take up this problem and prevent if possible the Telephone Company from changing the number of the telephones used by the members of this Society.

Motion made by Dr. C. H. Wallace that this Society adopt the emblem of the A. M. A. for automobiles used by its members and that a committee be appointed to see the police commissioners and secure the recognition of the emblem. Carried. Committee on automobile emblems: Drs. Owen, Proud and Beck.

Applications for membership of Drs. Walter Roger Moore and Lloyd James Thompson were returned approved by the censors and both applicants were unanimously elected to membership in this Society.

The subject of the Welfare Board membership was brought before the Society by President Ladd. The term of Dr. Morton expires the 15th instant which is the close of nine years of continuous service since the organization of the board. The voice of the meeting was that the Society should, by virtue of the great service rendered the poor of St. Joseph for the Welfare Board through the Medical Society Clinic and hospital staffs, receive recognition of their nominee for appointment on this board. Dr. Morton refused emphatically to consider further service on the board.

Motion by Dr. Morton, that the Society proceed to elect his successor by ballot and that the Society recommend to the mayor his appointment on the board; carried. Dr. J. F. Owens was unanimously elected.

Motion by Dr. Beck that the Society give Dr. Owens its unanimous support and that a committee be appointed, headed by Dr. Morton, to wait upon the mayor and present the claims of the Society in the appointment of the successor to Dr. Morton on the Welfare Board. Carried. Committee appointed as follows: Dr. Morton, chairman, Drs. Boteler, Ballard, Timmerman, Beck, Banschach, Elam, Jacob Geiger, Spencer, Branson, A. L. Gray, Ravold,

DeLamater, Kenney, L. P. Forgrave, H. K. Wallace, Mendall, Gebhart and F. H. Ladd, ex-officio.

Motion by Dr. Jacob Geiger, seconded by Dr. J. M. Bell, that this Society extend to Dr. Morton a vote of thanks for his faithful and efficient service on the Welfare Board and that the same be placed on the records of the Society and a copy be sent the newspapers for publication. Carried unanimously.

Motion carried that the Society endorse and work for the appointment of Dr. Jacob Geiger as a member of the state board of health.

Motion carried that the next meeting of this Society be a luncheon meeting.

Attendance, 60.

EMMETT F. COOK, M.D.,
Temporary Secretary.

Special Meeting April 7, 1922

Pursuant to a call for a special meeting, the Society met April 7 to discuss the subject of fee splitting and the resolution of the executive committee of the Missouri State Medical Association, dated February 8, 1922, the president, Dr. F. H. Ladd, in the chair. Sixty members were present.

A motion by Dr. Elam, seconded by Dr. C. H. Wallace, that this Society declare the secret division of fees indefensible and that charges will be preferred against any member found practicing such methods; carried.

The secretary reported an anonymous communication received by the Editor of the Missouri State Medical Journal.

It was moved that the secretary publish in the next bulletin the expressed opinion of this Society that if this anonymous communication was written by a member, he is a cur and a coward, and if he has any manhood he will resign from this Society. Seconded and carried.

OLIVER C. GEBHART, M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in the Court House at Clinton, Wednesday, March 29, at 1:40 p. m., the president, Dr. J. R. Hampton, in the chair and present with him were: Doctors S. A. Poague, W. R. Campbell, E. C. Peelor, J. R. Wallis, R. D. Haire, G. S. Walker and F. M. Douglass. Invited guests were: Doctors W. E. Bess of Sedalia and A. L. Anderson of Springfield.

The secretary requested a discussion of policy. Doctors Poague, Peelor and Haire gave their views of what should be done. Dr. Anderson said that all should work together toward having complete accord and helpfulness from now on.

Dr. Bess read a paper on "Diarrhea of Infancy and Childhood" that showed great care and research in its preparation and giving the best thought extant at this time of the different forms of attack; a complete history of the symptoms, the treatment, nursing and feeding. It was a good paper and highly commended. Doctors Haire, Wallis and Poague discussed it. Dr. Bess closed the discussion.

Dr. Anderson gave us a talk on the heart that was the best we have heard and as good as any we have read, going into the treatment and care of the person, both in exercise and time of sleeping, as well as eating, upon examining one part, explaining the manner of examination and what to look for and where. It was something new and valuable to think of.

The Henry County Medical Society has had three lectures delivered at the High School before the teachers and pupils and members of the Society.

The first lecture was on "Smallpox," illustrated by lantern slides, giving a history of the disease as at present known, the appearance in all stages, vaccination and the benefits derived and what is best to be done to protect the public against the disease.

The second one, delivered by Dr. J. B. Wood, of Kansas City, before the school and Society at the same place and illustrated by slides, was on "Vitamines." The Doctor went into detail of the history as known, what foods were best to use to get the vitamines, how the vitamines were classed and how arranged as to the good to be expected from each and why we should be more careful in dieting, and why we should see that children be instructed and watched for the errors they may acquire.

The third lecture was delivered by Dr. F. C. Neff, of Kansas City, on Friday, April 21, before the Society and the school on "Diphtheria," a subject that every family should know about and how to guard against it. The Schick test had been administered to ten pupils on Monday the 16th. Eight were present to show the result. Dr. Neff upon examination showed that four were positive and four negative, explaining what each was and what should be done, in addition to immunizing those susceptible by administering three doses of toxins six days apart, giving the ages that are more liable to be attacked and why those up to five years of age should be watched. He spoke of a campaign of education of the public on this matter that he started and why. The Doctor answered all questions in a manner that proved he was thoroughly acquainted with the disease and what good could be accomplished by efficient work.

Dr. J. H. Walton opened the discussion by praising the lecture and commending the work. Dr. T. A. Blackmore gave a history of his work on this line and the use of the Schick test and how he has pushed the campaign of educating the mothers in the care and treatment of small children, claiming it was much better to try to prevent the disease than to treat it after the onset.

The physicians present at this meeting with Dr. J. R. Hampton, president, were: Drs. J. G. Beaty, S. A. Poague, S. W. Woltzen, Wm. R. Campbell, E. C. Peelor, G. S. Walker, R. D. Haire, J. H. Walton and F. M. Douglass.

Dr. Robert D. Haire administered the Schick test by hypodermic on Monday, assisted by Dr. W. R. Campbell, at the request of the secretary.

We shall have one more lecture on typhoid fever some time in the future.

F. M. DOUGLASS, M.D.,
Secretary-Reporter.

SCOTT COUNTY MEDICAL SOCIETY

Scott County Medical Society met in the office of Dr. T. R. Frazer, Commerce, April 11, 1922. Present: Drs. T. R. Frazer, F. F. Frazer, H. T. Blackledge, W. O. Finney, W. S. Hutton, G. T. Dorris and E. J. Nienstedt.

The minutes of the previous meeting were read and approved.

Case reports were given by Drs. Hutton, Finney and Nienstedt.

Blodgett was selected as the next place of meeting.

E. J. NIENSTEDT, M.D., Secretary.

BOOK REVIEWS

EPHRAIM McDOWELL, "Father of Ovariectomy" and Founder of Abdominal Surgery, with an appendix on Jane Todd Crawford. By August Schachner, M.D., F.A.C.S., Louisville, Ky. J. B. Lippincott Company, Publishers. Philadelphia, 1921. Price, \$5.00.

This volume is a splendid tribute by a loyal Kentuckian to the greatest medical man of his state.

In the foreword the author announces that a portrait of Ephraim McDowell hanging in the Universitaets-Frauenklinik in Berlin is responsible for the work. The reviewer was also impressed with this portrait, hung by Prof. Robert Olshausen, and decorated with a laurel wreath in 1909 in commemoration of the centennial of the first ovariectomy. Thus did the great German gynecologist respect the contribution of the Father of Ovariectomy to medical science.

Dr. Schachner has given us an authentic work which will long be used by research workers who are seeking first-hand knowledge of many of the facts concerning the life and times of McDowell. He has appreciated the fact that to understand the life of a man it is essential to know his contemporaries and the times and locality in which they have lived. All this Schachner succeeded in bringing before the reader in a direct and clear manner. When it is noted what difficulties were encountered, what obstacles had to be met, what neglected records were found after considerable search, it is truly a noteworthy effort.

We have here an exhaustive biography of a man who is justly entitled to fame with a well-written history of his surroundings. The illustrations are good, most of them being original.

The elaborate bibliography and carefully prepared index enhance the value of the book as a work of reference.

R. E. S.

THE MECHANICS OF THE DIGESTIVE TRACT. By Walter C. Alvarez, M.D., Assistant Professor of Research Medicine, George Williams Hooper Foundation for Medical Research, University of California Medical School. With twenty-two illustrations. New York: Paul B. Hoeber, 1922. Price, \$3.50.

This book is worthy of more than passing notice, for it represents one of those researches in basic physiological problems that are truly worth while. Furthermore, it is written in such a practical way that even a practitioner who has been forgetting his physiology can read it with intelligence and profit.

In brief, Dr. Alvarez's idea is that the tone of the stomach and upper bowel is greater than the tone of the lower bowel. It is, therefore, more susceptible to irritations and it responds to smaller stimuli, and in general sets the pace for an action of the bowel below. Consequently the reversal of this gradient, as he calls it, tends to produce constipation and, when pushed farther, nausea and vomiting. The author contrasts his theory very sharply with that of Eppinger and Hess. But to the mind of the reviewer, it seems more of a supplementary theory than of a conflicting or competing one. The two theories fit in very well together, and if one will keep the two in mind he cannot go far astray. When the reviewer heard this thesis given by the author in 1915 he was much impressed by the reasonableness of it, and since then has been applying the principle in his own practice and finds that it has a practical bearing supplementary to the vagotonia theories.

As a practical example of the conclusion reached by the author, we quote his diet for colitis: (This, it will be noted, is in sharp contrast to the rough diets ordinarily prescribed.)

Breakfast: Orange juice, grape fruit (avoid the fiber). Cantaloupe and melons are inadvisable as they tend to regurgitate for hours. Coffee in moderation, chocolate, cocoa or tea. One or two eggs with ham and bacon (avoid the purely fibrous part). White bread and butter, toast or zweiback. Any smooth mush, such as farina, germea, cream of wheat, cornmeal or strained rolled oats. Puffed cereals and corn flakes are also allowed. Shredded wheat biscuits and other coarse breakfast foods are not allowed.

Lunch or Dinner: Broths, bouillon, cream soups, chowder. Small portion of meat, fish, oysters, chicken or squab (avoid the fibrous parts and gristle). No smoked or canned fishes or pork. Avoid veal, crab and lobster, if they seem to cause indigestion. White bread and butter, hot biscuits made small so as to consist mainly of crust. No rough, branny breads or bran biscuits. Rice, potatoes—baked, mashed, hashed—brown or French-fried, sweet potatoes, hominy, tomatoes—stewed, strained and with cracker crumbs, well-cooked cauliflower tops with cream sauce, asparagus tips. Later may try brussels sprouts. Italian pastes, noodles, macaroni or spaghetti, cooked soft with a little cheese or cream sauce.

The proofreading could have been improved upon. The paper is good, the binding fair, the bibliography excellent.

G. H. H.

DISEASES OF THE DIGESTIVE ORGANS. With Special Reference to Their Diagnosis and Treatment. By Charles D. Aaron, Sc.D., M.D., F.A.C.P., Professor of Gastroenterology and Dietetics in the Detroit College of Medicine and Surgery; Consulting Gastroenterologist to Harper Hospital. Third Edition, thoroughly revised. Illustrated with 164 engravings, 48 roentgenograms and 13 colored plates. Lea & Febiger: Philadelphia and New York, 1921. Cloth, 8vo., pp. 904. Price, \$10.00.

The fact that the book is now in its third edition makes unnecessary any extended criticism of the underlying plan and form of the work. One might, however, think that this book is apparently an attempt to gather in one volume the most important procedures and facts in the diagnosis and care of the diseases of the intestinal tract. But no book can quite keep up to the advances made from month to month and appearing in the periodical literature. So in this book we do not find any adequate discussion of Alvarez's theory of gradients; nor do we find a discussion of the functional test of the liver by means of tetrachlor. Even the Lyon-Meltzer treatment for gall-bladder diseases receives more scant attention than it deserves.

But, everything considered, it is a very useful book and should be available to every man who is trying to do special work along this line.

The binding, paper, printing and proofreading seem above reproach.

G. H. H.

THE FUNDAMENTALS OF HUMAN ANATOMY. Including its borderland districts from the viewpoint of a practitioner. By Marsh Pitzman, A.B., M.D., Professor of Anatomy in the Dental Department of Washington University, St. Louis. With one hundred one illustrations. St. Louis: C. V. Mosby Company, 1920. 356p.

The author has here presented a work on anatomy in a rather unusual way. He is a practicing sur-

geon who has had a long experience in teaching anatomy.

As a surgeon he is well aware of the necessity for a knowledge of anatomy in those who would become doctors and as a teacher he has learned that our modern methods of teaching the subject leave much to be desired. In anatomy as in most of the other departments of the present-day medical school I fear it is the aim of the teachers to "get the student to think for himself" and in most cases he is doing so—with what consequences only a real surgeon (i. e., anatomist surgeon) can realize.

The author warns us at once that in the work we will find only fundamentals of the science. They are here, these fundamentals, and in brief form. The work is not a quiz compend, but it is a short compendium of the outstanding foundation facts of human anatomy put in readable form.

The language is simple, the statements direct and certain. There are no "in other words." The illustrations are clear cut and well lettered and the schematic illustrations are original and certainly aid greatly in the understanding of much that without them would remain obscure.

If this work or one like it were given the student in his preparatory years or even in his first year in medicine, it seems to me he would require a sort of framework on which to hang his future knowledge of anatomy.

Just as an outline of history should first be learned by those who wish later to know more about it, so should the student who wishes to practice medicine intelligently first be made familiar with an outline of anatomy.

W. T. C.

PUBLIC HEALTH AND HYGIENE. In Contributions by Eminent Authorities. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories of the Department of Health, New York City. Illustrated with 123 engravings. Lea & Febiger: Philadelphia and New York, 1920. Price, \$10.00.

Prepared with the object of assisting public health officers, physicians and medical students, this work by an authority on methods of protection of the public health and the control of communicable diseases is a standard work that will be a source of information and direction to all workers in public health service. It is a compilation of articles contributed by twenty-four scientists, each one an authority in his special field, so that the entire work presents in a comprehensive form the last word on sanitation and hygiene, particularly as relating to public health protection. The book should be in the hands of every health officer and every physician who has occasion to study hygiene and sanitation and the control of communicable diseases.

THE TRUTH ABOUT MEDICINES

PROPAGANDA FOR REFORM

ANOTHER REMONSTRANCE AGAINST MERCURY INHALATION.—During the last few years the attention of the medical profession has been directed by clever propagandists to the treatment of syphilis by procedures which involve the volatilization of mercury-containing mixtures by heat and the inhalation of the resulting volatile products. There is nothing novel in the principles concerned. Inhalations as well as fumigations of mercury have been tested at various times and the procedures have been abandoned because of the uncertain dosage. The Council on Pharmacy and Chemistry has refused to endorse preparations proposed for the treatment of

syphilis which depended essentially on the administration of mercury by inhalation (Spirocide Not Admitted to N. N. R.). In this decision it is sustained by a reinvestigation of the inhalation treatment of syphilis carried out by Cole, Gericke and Sollmann. The investigators point out that the assumption that mercury is more promptly absorbed by the lungs was based on physical misconceptions. In fact, the mercury is condensed on the mucous membranes of the mouth, pharynx and respiratory tract. That in the mouth and pharynx is, for the most part, swallowed; and the absorption then takes place by the gradual conversion of the mercury into soluble compounds. In other words, the administration of mercury compounds by inhalation has no advantage over oral administration. It has the serious disadvantage of indefinite dosage (*Jour. A. M. A.*, March 4, 1922, p. 654).

COLLOSOLS (BRITISH COLLOIDS, LTD.).—Collosols is the trade name applied to certain alleged colloidal preparations of drugs made in the Crookes Laboratories by British Colloids, Ltd., London. The collosols are recommended for external, internal, intramuscular and intravenous administration. A few years ago the Council on Pharmacy and Chemistry investigated the Collosol products and found that some of the specimens contained precipitates and thus they were not colloidal. Commenting on the presence of precipitates, the Council pointed out that if "injected intravenously as directed, death might result, making the physician morally, if not legally, liable." In the cases in which the therapeutic claims for Collocols were examined, the claims were found to be either exceedingly improbable or exaggerated. In the Collosol "literature" there are frequent references to enthusiastic reports by Sir Malcolm Morris, K.C.V.O., F.R.C.S.E. This medical knight seems to have devoted his energies to the exploitation of Collosols and is reported to be one of the directors of the Collosol concern (*Jour. A. M. A.*, March 4, 1922, p. 674).

HALE'S EPILEPTIC RELIEF.—According to advertisements in certain cheap weeklies, Hale's Epileptic Relief is "prescribed by the best New York specialists." These advertisements offer to send a \$1.50 bottle free. Those who answer the advertisement receive a 4 ounce (118.4 cubic centimeter) bottle of a brown liquid and a small package of tablets, also a sample box of Hale's Liver Tablets. The American Medical Association Chemical Laboratory analyzed these preparations, and reported that the preparations give tests for ammonium, sodium, potassium and bromids, and that the bromid content is equivalent to 20.73 gm. of potassium bromid per hundred c.c. The tablets were found to contain emodin bearing (laxative) drugs—possibly aloes (*Jour. A. M. A.*, March 4, 1922, p. 672).

OUR KNOWLEDGE OF VITAMINS.—It is generally accepted that a well-balanced diet provides the individual with such vitamins as are necessary to maintain growth and nutrition. The British Medical Journal in a leading editorial reiterates the statement that an abundant supply of vitamins exists in all fresh vegetables and that a considerable quantity occurs in milk and meat, provided the latter substances are obtained from animals fed on fresh foods. A normal adult living on an ordinary diet containing a reasonable proportion of fresh vegetables is, therefore, certain of obtaining a plentiful supply of vitamins. Of all the mass of evidence which has accumulated relative to these substances, this fact is the point of greatest importance. It is, however, very unfortunately, the one point which those commercially inclined are unwilling to recognize (*Jour. A. M. A.*, March 11, 1922, p. 734).

PULVANE.—In a twelve-page pamphlet, sent out by the Pulvane Laboratories, Inc., Des Moines, Iowa, and purporting to deal with "The Therapy of Pulvane, an Advanced Method for the Treatment of Respiratory Diseases," we are told that Pulvane "was developed in a United States Army General Hospital by officers of the Medical Department." Pulvane is administered by inhalation, at the offices of the Pulvane Laboratories, Inc. Its "discoverer," it is declared, chanced on the method of "introducing into solution and volatilizing a certain germicide, extremely rare in its usage, because of its resistance, heretofore, to attempts to bend it to scientific will." This "rare" medicament is alpha naphthol. But since the discovery of this volatilizing method "three other ingredients of high therapeutic value have been added." It is stated that the "medical directors" will be glad to name every ingredient of Pulvane to any reputable member of the profession. Nothing is said about disclosing the amounts of the ingredients of Pulvane and hence the information offered is no more complete than that furnished for such patent medicines as Peruna. With regard to the claim that Pulvane was "developed in a United States Army General Hospital by officers of the Medical Department," Surgeon-General Ireland of the United States Army announces that the Medical Department of the Army had nothing whatever to do with the matter and that it thoroughly disapproves of the methods of the promoters of the concern (*Jour. A. M. A.*, March 11, 1922, p. 750).

WARN'S EPILEPSY TREATMENT.—The claims made for this nostrum are similar to those made for Maghee's Epilepsy Treatment, but they are worded more cautiously. While in the case of the Maghee preparation it is claimed that certain effects WILL be produced, the Warn Remedy Company avers that these effects SHOULD be produced by the preparation. The A. M. A. Chemical Laboratory reports that Warn's Epilepsy Treatment consists of capsules, each containing approximately 0.06 gm. (1 grain) of phenobarbital (luminal) to which has been added some charcoal and that it differs but slightly (by absence of bismuth subnitrate) from Maghee's Epilepsy Treatment analyzed previously (*Jour. A. M. A.*, March 18, 1922, p. 834).

THE FUTURE INDEPENDENCE AND PROGRESS OF AMERICAN MEDICINE IN THE AGE OF CHEMISTRY.—The recent war brought about a realization of how dependent we had been on Germany for our most valuable drugs. However, before the war was over, American manufacturers were making adequate supplies of urgently needed drugs. In their work on war gases chemists had an example of what could be accomplished in an almost incredibly short time when facilities for research were provided on a large scale and under conditions allowing of the fullest co-operation of chemists, physicists and physicians. With the close of the war, chemists began to consider to what extent such facilities might bring about American independence in drugs. A committee appointed by the American Chemical Society has now issued a report which elucidates the subject. The report makes it clear that pharmacologic research in German universities and in privately endowed institutes are far ahead of those in the United States. Our schools of medicine and hygiene, the report continues, are largely ignoring the services which pharmacology, in close co-operation with chemists and clinicians, can render to hygiene and preventive medicine. About twenty years ago Congress established the Hygienic Laboratory of the U. S. Public Health Service; the plan of its organization was unsurpassed by that of any laboratory in the world, but since then Congress has failed to provide for any considerable

growth of this laboratory. Enlarged and with adequate support, this laboratory could give the United States the leading place in the world in this great scientific and humanitarian endeavor toward the discovery of new drugs. If better government support of the Hygienic Laboratory cannot be secured, then a privately endowed research institute must be the goal of those who realize the vast benefits which will accrue from the proper type of research in drug therapy (*Journal. A. M. A.*, March 18, 1922, p. 806).

VERATRUM VIRIDE IN PNEUMONIA.—Medical opinion is averse to the routine use of veratrum viride in the treatment of uncomplicated pneumonia. Claims made for the use of veratrum viride are advanced for other drugs, none of which has borne critical investigation. The error on the part of those who make these claims is the result of inadequate control observations. Advocates of veratrum viride, aconite and venesection believe that by the depression of the circulation produced by the treatment, they may lessen the extravasation of blood into the air vesicles and to this degree lessen the involvement of the lungs. The lack of demonstrable success of venesection has led to the discarding of this once almost universally employed mode of treatment of pneumonia. It is unreasonable to expect as much or more from aconite or veratrum than from venesection (*Jour. A. M. A.*, March 18, 1922, p. 835).

ALBERT ABRAMS, A.M., M.D., LL.D., F.R.M.S.—Dr. Abrams has published a book on "Spondylotherapy" ("Physio-Therapy of the Spine"). Spondylotherapy is stated to concern itself "only with the excitation of the functional centers of the spinal cord." Between 1912 and 1914 Dr. Abrams gave "clinical courses" on "Spondylotherapy" in various parts of this country. More recently Dr. Abrams had advertised that he gives a "course" in "Spondylotherapy" in San Francisco. In addition to "Spondylotherapy," Dr. Abrams has also evolved what he calls the "Electronic Reactions of Abrams" which are said to make possible long-distance diagnosis, it being necessary only to send a few drops of blood taken from the patient and allowed to dry on a slide. Dr. Abrams founded and edits "Physico-Clinical Medicine," a quarterly "devoted to the study of the Electronic Reactions of Abrams . . ." What seems to be the outstanding piece of apparatus, devised or invented by Dr. Abrams, of physico-clinical diagnosis and treatment is the "Oscilloclast." All one needs to do, according to Dr. Abrams, is to ascertain the "vibration rate of a drug" and then to substitute the same vibration as produced by the "Oscilloclast." More recently, Dr. Abrams has extended his observations and experiments, using what apparently is a modification of the old-fashioned pith ball suspended by a silk thread from a rubber rod. This device he calls the "Electrobioscope." If there is any scientific foundation for the marvels that Dr. Abrams so picturesquely features, the scientific world has not yet found it out (*Jour. A. M. A.*, March 25, 1922, p. 913).

NEW AND NONOFFICIAL REMEDIES

AMMONIUM ICHTHYOLATE-MEADOWS.—An aqueous solution, the important constituents of which are ammonium salts of indefinite, complex, organic acids, partaking of the nature of oxygenated bodies and sulphonates held in colloidal dispersion. It is derived from an oily distillate of a fossiliferous bitumen found in Texas. It is claimed that ammonium ichthyolate-Meadows has the therapeutic properties of ichthyol. (See New and Nonofficial Remedies, 1921, p. 344.) It is a reddish-brown, viscous fluid, having a faint odor. It is soluble in water and

miscible with glycerine and fatty vehicles. Meadows Oil and Chemical Corporation, Durant, N. Y. (*Jour. A. M. A.*, April 1, 1922, p. 967).

QUINIDINE.—**QUINIDINA.**—An alkaloid obtained from the bark of various species of Cinchona. Quinidine acts upon the heart in such a manner as to bring about cessation of fibrillation of the auricles in a certain proportion of instances. It is used to restore the normal rhythm of the heart in cases of auricular fibrillation. The drug is not without unpleasant and even dangerous effects. Cases of sudden death from its use have been reported. Quinidine is generally administered as quinidine sulphate. Two-tenths gm. is given as a preliminary dose. If no untoward effects result, the drug is administered on the following day in doses of from 0.2 to 0.4 gm., from three to five times a day and continued for from one to three days.

QUINIDINE-P. W. R.—A brand of quinidine-N. N. R. Powers-Weightman-Rosengarten Co., Philadelphia.

QUINIDINE-N. Y. Q.—A brand of quinidine-N. N. R. New York Quinine and Chemical Works, New York.

QUINIDINE-M. C. W.—A brand of quinidine-N. N. R. Mallinckrodt Chemical Work, St. Louis.

QUINIDINE SULPHATE.—**QUINIDINAE SULPHAS.**—The sulphate of quinidine. For actions, uses and dosage, see under quinidine. It may be administered in the form of cachets, capsules, pills or tablets.

QUINIDINE SULPHATE-P. W. R.—A brand of quinidine sulphate-N. N. R. Powers-Weightman-Rosengarten Co., Philadelphia.

QUINIDINE SULPHATE-N. Y. Q.—A brand of quinidine-N. N. R. New York Quinine and Chemical Works, New York.

QUINIDINE SULPHATE-M. C. W.—A brand of quinidine sulphate-N. N. R. Mallinckrodt Chemical Works, St. Louis (*Jour. A. M. A.*, April 8, 1922, p. 1051).

BENZOCAINE-SEYDAL.—A brand of benzocaine-N. N. R. (See New and Nonofficial Remedies, 1922, p. 39.) The Seydel Manufacturing Co., Jersey City, N. J.

VEN STERILE SOLUTION PROCAINE 1 c.c.—Each ampule contains 1 c.c. of a 1 per cent. solution of procaine-N. N. R. (See New and Nonofficial Remedies, 1922, p. 35.) Intra Products Co., Denver, Colo. (*Jour. A. M. A.*, April 22, 1922, p. 1201.)

VEN STERILE SOLUTION MERCURY BENZOATE 1 c.c.—Each c.c. contains mercuric benzoate, 0.02 gm. (one-third grain). (See New and Nonofficial Remedies, 1922, p. 192.) Intra Products Co., Denver, Colo.

TABLETS OF MERCUROCHROME-220 SOLUBLE.—Each contains 4.6 grains. (See New and Nonofficial Remedies, 1922, p. 187.) (*Jour. A. M. A.*, April 29, 1922, p. 1296.)

STERILE SUSPENSION MERCURY SALICYLATE IN CACAO BUTTER 1 c.c.—Each c.c. contains .097 gm. (1½ grains) of mercuric salicylate. (See New and Nonofficial Remedies, 1922, p. 193.) Intra Products Co., Denver, Colo.

STERILE SUSPENSION MERCURY SALICYLATE IN OLIVE OIL 1 c.c.—Each c.c. contains 0.097 gm. (1½ grains) of mercuric salicylate. (See New and Nonofficial Remedies, 1922, p. 193.) Intra Products Co., Denver, Colo. (*Jour. A. M. A.*, April 29, 1922, p. 129.)

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ORIGINAL ARTICLES

REORGANIZATION AND CONSOLIDATION OF THE STATE HOSPITALS OF MISSOURI*

G. P. ARD, M.D.

JEFFERSON CITY, MO.

It is a pleasant privilege on behalf of the Board of Managers of the State Eleemosynary Institutions to address this distinguished assemblage and to discuss with this body the operation of the law which has for its object the elimination of the political spoils system and the placing of our institutions on a higher plane of efficiency.

It is instructive to reminisce and to review such records of insanity as history has preserved, beginning with the age of superstition, advancing through the period of Hippocrates whose teachings urged the employment of hygienic measures, then retrograding into the dark ages of sorcery and witchcraft, when tortures were employed to expel demons from the body and thousands were burned at the stake who today would receive beneficent care and perhaps recover in a state hospital for the insane, and concluding with the chain and dungeon era of the 17th and 18th centuries which was followed by the era of special asylums and hospitals.

It is a fact that as late as the 18th century it was not uncommon to see insane persons publicly exhibited in cages in so civilized a country as France.

In the period which elapsed from 1830 to 1850 great and rapid advances were made throughout the United States in methods of caring for the insane. The first state hospital in Missouri was established at Fulton in 1847 and has the distinction of being one of the oldest institutions of its kind west of the Mississippi River. The second was established in 1872, the third in 1887, the fourth in 1903. The Missouri Colony for Feeble-Minded and Epileptic, was established in 1899 and the Mis-

souri State Sanatorium in 1905. An inventory shows the valuation of these six institutions to be approximately \$6,400,000, with an acreage of 3,935 acres. The present population of the hospitals is 6,085, and the cost of maintenance of the institutions is \$4,867,869. The present available appropriations for new buildings is \$813,250.

The organization for the control of state institutions upon an efficient and economical basis is attracting attention throughout the country; all developments seem to turn in the direction of centralized control and the first sentiment aroused by the contemplation of this department was one of optimism. The present appropriations were secured before the board became operative and the work has consequently been somewhat limited to the development of plans for the future.

During 1921 there was passed by the General Assembly of the State of Missouri an act to create a Board of Administration and to repeal certain sections of previous laws which applied to the administration of the state institutions. The board so created became operative June 19, 1921. On this date all boards of trustees were abolished. Previous to the passage of this act, each institution was managed and expenditures were made by a board of trustees; under the former system of management each institution appealed to the legislature for its appropriation. This necessitated much lobbying and possible political intrigue. Hereafter, one budget will be presented for the six institutions. I cannot refrain from stating that Governor Hyde's pledge to the people of this state has been fulfilled and the people of Missouri owe to him an everlasting debt of gratitude for this legislation, which many governors promised but failed to enact.

In the analysis of the bill creating the Missouri State Board of Administration, we find its principal provisions pertain to providing humane and scientific treatment, to secure the highest degree of individual development for the wards of the state, to secure systematic and uniform management, to attain the high-

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, May 2, 3, 4, 1922.

est degree of economy consistent with the standards to be maintained, and finally to promote the study of mental, physical and moral defect with a view to a cure or prevention.

The bill provides for a bipartisan board of managers to be appointed by the Governor for terms of from one to three years. The board of managers, except the president, shall each receive as compensation one dollar per year and expenses. The president of the board has complete supervision over the business management of the institutions and has the power to call a meeting of the board whenever necessity arises. The board has appointed a health supervisor, who is an ex-officio member of the board. His duties pertain to the supervision of the medical department of the institutions, to consult with the superintendents and assistant physicians, to see that proper scientific methods are employed, and to require the superintendents to make such reports as he may deem necessary. He shall visit and inspect each institution once every two months.

The board of managers has the power to appoint the superintendents. The health supervisor shall prescribe the qualifications and no person shall be appointed to this position who does not possess the necessary qualifications. The superintendents, with the approval of the health supervisor, shall appoint the assistant physicians. The superintendents and assistant physicians may be removed or transferred by the board for cause or upon the recommendation of the health supervisor. The board of managers appoint the stewards, who are required to give bond in the sum of twenty-five thousand dollars for the faithful performance of their duties. The steward is the custodian of all property of every kind and description belonging to the institutions and, with the president of the board, he is the purchasing agent for the institution. All supplies, except where emergency purchases are made, shall be by competitive bid. Joint purchases for the various institutions may be made by the president of the board.

The duties of the superintendents are limited entirely to administrative problems and to the health and sanitation of the institutions. The wisdom of this provision is so obvious that further comment is unnecessary. The future success or failure of a board of such character must depend upon the type of men appointed to the board by the governor.

The question is frequently asked, What results are accomplished by this organization? Do they equal or exceed the standards of care or accomplishment of the former system? The views of the board are indicated by its record of recent accomplishments and by the trend of the legislation to be advocated at the next

session of the legislature. We have felt it to be our duty to be sure that the large sums so generously appropriated for our department are so economically spent as to give the state full values for the expenditures made. The board, therefore, caused a careful study to be made for the purpose of determining whether the methods of purchasing and requisitioning supplies were in every respect what they should be. In order that the board may be fully acquainted with the progress of the work in the institutions a system of reporting was established in accordance with which the superintendents and stewards report monthly to the central office the important achievements and results of effort in their respective institutions.

In order that close co-operation be maintained between the members of the board and its various departments and the managing officers, and that subjects common to all might be presented and discussed, meetings will be held at the various institutions. I will leave out of consideration the very wide powers of investigation, inspection and recommendations allotted with the board. The new system is meant to insure the continuity of administration which all our states need without perpetuating a system until it disintegrates because of disuse. It seems, therefore, that Missouri has gone as far as possible to insure an administration responsive to the popular will. Partisan politics has played no part in the selection of the personnel to put into execution the new system and the officers selected were selected because they represented the best men in the state who were available for this work. The inadequacy of the salaries as prescribed by law has been a serious handicap in filling the various positions.

In reorganizing the fiscal branch of the department, the board has effected economies by competitive and co-operative buying and therefore we have more money to expend for our patients' welfare. As a specific instance of economy may I mention the fact that the chief engineer who has general supervision of all the various power plants in connection with the six institutions, has made recommendations regarding improvements that have been the means of bringing these plants up to a most efficient basis and has resulted in a saving of \$50,000 per year. This was made possible by a careful investigation and follow-up system.

In one institution the great ambition was to save money in order to return it to the state treasury and thereby make a commendable showing for the hospital. I regret that every member of this Society could not have seen the gross inefficiency and mismanagement resulting from such a pernicious custom.

These institutions have no right to exist if they are not doing the work which they were created to do. Suppose by spending more money we could, by prevention or better treatment, succeed in diminishing the number of these patients, wouldn't that be true economy?

The consideration of per capita cost is becoming less a factor in the best hospitals. The people will be willing to support our hospitals when they once learn that real progressive work is being done. Complaints of management have always been and always will be made, but if effectual work is being done and results show this work to be of a high standard, I venture to say there will be a minimum of these complaints. The question has now become, how well, not how economically, can they be treated.

Among the innovations introduced in all our hospitals may be mentioned occupational therapy. We find in every hospital for the insane a small number of patients who perform the routine duties of the ward, farm, kitchen, laundry and other laborious and monotonous work, but it leaves a large number of patients who remain idle, destructive and noisy and for whom nothing has been done in the line of employment. It is with such as these as well as with the more recent and convalescing cases that further effort is demanded. Idleness leads to introspection, whereas occupation demands attention directed upon outside matters. The insane loss of self-control must be overcome in securing creative activity. Use of the hands means at least an elementary activity of the mind; the unused functions, psychic as well as material, become enfeebled. To meet this situation, different kinds of occupation must be furnished in the wards and elsewhere so that the unexpended energy may be put to some constructive use. This therapy will include handicraft occupations or even kindergarten methods and must have the closest supervision of a trained therapist, who also will instruct the nurses in this work. The organization of these departments is one of the most efficient means in solving the problem of restraint and seclusion. There is no other remedy known at the present time that is more productive of good results than occupational therapy.

We have employed a chief therapist to direct this work in each hospital. These therapists are highly trained and for several years have been employed by the United States government agencies. We are not unmindful or unappreciative of the splendid co-operation we have received from the Missouri Association for Occupational Therapy in assisting us to organize and equip these departments and we sincerely hope that the medical profession in

this state will watch the development of this work with the interest that its introduction merits.

It is hardly necessary to dwell on the rapidly widening field of usefulness which lies before the mental hospital laboratory. No institutional laboratory can afford to be concerned chiefly with post-mortem pathology, although I do not for a moment minimize the importance of this aspect of laboratory work; but of equal importance in our opinion is the application of the modern methods of clinical pathology to the study of mental diseases and to their diagnosis and treatment. We believe that studies in clinical pathology, in bacteriology and in physiological chemistry bear upon some of the most important research problems in the whole field of psychiatry. We have accordingly equipped laboratories at the hospitals at St. Joseph and Nevada. These laboratories will also be utilized in doing laboratory work for the other institutions. X-ray equipments have been installed at the hospitals at Nevada, Fulton and Farmington. Modern dental equipments have been installed in every hospital and resident or part time dentists have been employed. The utilization of the laboratory and X-ray plant at the Nevada institution by the medical profession in that section would assure them of excellent results at a small expenditure. In our opinion these hospitals could be very profitably utilized as community medical centers. The initiative in this movement must necessarily be taken by the county medical society.

RECOMMENDATIONS TO BE SUBMITTED TO THE ATTENTION OF THE NEXT LEGISLATURE

A psychopathic hospital is urgently needed in this state. This hospital may be described as being of the temporary care type, not designed primarily for the custody of obviously committable cases, but for the observation and treatment of incipient mental diseases as well as psychopathic conditions not properly coming within the fields covered by the state hospitals for the insane. The policy of the courts is to commit directly to a state hospital all cases showing the necessity of a period of hospital care and treatment. That there are a large number requiring only a preliminary period of observation before their need for commitment can be definitely determined is shown by the fact that in six years at the Boston Psychopathic Hospital there were 11,289 admissions and that 6,499 or 59 per cent. were temporary cases and did not require commitment to the wards of a state hospital. There was an average of 331 voluntary admissions per year. This proves that, if given an opportunity in individual communities throughout the state, many persons would

avail themselves of this privilege and a great number of commitments be avoided and the stigma of having been a patient in a hospital for the insane.

The function of the psychopathic hospital would be comparable to the army psychiatric wards—to care for these cases who do not require prolonged custodial care and to attempt to restore them to useful citizenship as rapidly as possible.

Physicians and nurses who have had no previous experience in the care and treatment of the insane but who intend to take positions in the state hospitals could attend certain prescribed courses to be outlined in a psychopathic hospital. This central training school should be able to supply vacancies which it is now difficult to fill.

I am speaking with a sense of educational injustice so common to us all when we come to appreciate the neglected spots in our medical preparation, for certainly there can be no special training more essential to a physician than a thorough knowledge of the mind and its reactions under stress or disease. With this thought in mind we have offered positions in our institutions to the undergraduates in the Medical Department of Missouri University. Through their contact with the institutions they will learn to appreciate the scope of psychiatric problems. Psychiatry is a subject that has much to appeal to the interest of the medical student and it is to be hoped that this interest will lead them into the service of the state hospitals. Our hospitals must make these positions more attractive to the recent graduate, not alone in the matter of salaries but also in the standards of medical work to be performed. The traditional routine makes it difficult for the medical graduate to maintain his interest in the scientific aspects of medicine.

A colony for epileptics is urgently needed in this state. At the present time there are hundreds of epileptics in the state hospitals for the insane. The objection to hospitalizing epileptics in the same institutions with the feeble-minded and the insane is so well recognized that comment is unnecessary.

THE PROBLEM OF THE FEEBLE-MINDED

Perhaps no other topic of public interest is as worthy of legislative, platform and club discussion as the subject of Missouri's present inability to meet the problem of training and caring for its mental defectives. It is first in importance of all sociological questions. It may never be solved in its entirety; its limitation is all we can hope for. Once the relation between feeble-mindedness, criminality and the lesser derelictions can be impressed upon the public, then only will the enormity of the

subject become patent to it and its cost in dollars be appreciated.

The consensus of opinion from scientific thinkers on eugenics teaches that the feeble-minded are the result of inherited defect and that improvement may be predicted in many, but restoration in none. The public should begin to realize that whether the defect be recessive or congenital the trail of feeble-mindedness is transmitted with certainty and the rate of increase is more rapid than in normal people; that the defective class is a self-perpetuating body and it should be borne in mind that the morons are the propagators of type. The public is surprised at the sudden pending of the evil, forgetting that heretofore they were hidden or destroyed through neglect and disease as the insane were until less than half a century ago, but now they are uncovered by census and public care to mature and multiply. Colonization will partly meet the situation; after this is accomplished sterilization can be considered.

It is my purpose to deal directly with conditions at hand. Among the drafted men in Missouri between the ages of 21 and 31 there were 990 rejected because of mental deficiency, and in a recent survey made by Dr. Haines he estimates that the number of mental defectives in this state may be as high as 13,000. We feel that this state should take immediate action toward the prevention of the constant increase in this class. The most important problem confronting the social organizations and the juvenile courts in this state is the urgent necessity for the expansion of the Colony for the Feeble-Minded and Epileptics at Marshall. I was distressed to find hundreds of mental defectives in the hospitals for the insane and I am reliably informed that there are many residing in almshouses, state reformatories and industrial homes. Let us exert our combined energies towards securing from the next session of the legislature an appropriation to complete the institution at Marshall.

COUNTY CARE OF THE INSANE IN ALMSHOUSES

It is gratifying to reflect that in the states where the indigent insane have been brought under state care the advances have been more rapid than during any previous period. No adequate provision has been made for the purpose of affording them the advantages of proper medical treatment. Among all the different classes of the unfortunate for whose support and comfort it is the duty of the public to provide there are none whose claims are paramount to those who are hospitalized in county almshouses. Subjected as they are to the double ills of poverty and mental derangement, and utterly incapable of providing for

the removal of either of these afflictions, their helpless condition appeals irresistibly to our sense of justice and demands that relief which the public owes to the destitute members of the community. It cannot be expected that all the advantages necessary to a successful application of curative means can be afforded to the insane while they are scattered throughout every part of the state. It is only when they are segregated in a state or private institution that relief can be afforded, but if this subject is to be regarded merely as a question of economy a large number of patients can be supported and supplied with medical attention at an expense much less than in county almshouses. The public would also be relieved from a heavy expense by a cure of the insane. At the present time there are approximately 300 mental patients in Missouri's almshouses. This number does not include cases of senility. There is only one way in which to abolish the county care system and that is for the state to assume most or all of the cost of maintenance of the insane in state hospitals. At the present time 35 states assume the entire expense of maintaining their indigent insane. Missouri is one of only six states which still throws the burden of maintenance on the county.

To secure these ends greater and greater facilities in the way of workers and equipment are required and more public money must be made available. Persistent efforts must be made to mold public opinion to this view. It is wrong to place the entire blame for insufficient appropriations wholly upon legislative halls for the reason that legislators are only the representatives of their constituents in the concrete and they represent the preponderance of the public sentiment of the state. Our public hospitals are the result of the partial recognition by the public of its obligations to its fellow creatures and are merely fulfilling the demands of simple justice. We lack means and legislation for the employment of more physicians and nurses, we lack means for the employment of social workers in the after-care of patients and in conducting out-patient clinics, we lack means for purchasing hydro-therapeutic apparatus, but above all we lack the public appreciation of the menacing nature of these problems and its support in solving them.

The chief executive is in hearty accord with our progressive program and it is incumbent upon the members of the medical profession to consider it their sacred duty to assist us in every way possible in presenting these facts before the individual members of the legislature. I am firmly of the opinion that much constructive medical legislation could be accomplished if this Association would emulate

other states in the matter of a more unified effort in this direction.

Prophylactic psychiatry is not a new thing and we beg this Association to divert at least a portion of the energy devoted to the care of persons brought to us for treatment, to teachings that may prevent their coming in ever increasing numbers. I am not in harmony with the statistician who argues that because the total population of the United States has increased the number of insane will necessarily be increased in proportion. It should be strongly impressed upon the mind of the profession that to cope with insanity in a given locality there must be a close relation between the institution and the region around about it. Also that patients should be encouraged to come voluntarily to institutions in the incipient stages of disease and that convalescent patients when able to leave the institution should remain under its supervision in order that causes of disease which precipitated the first attack may be removed before they become operative; and wise counsel may be given throughout the convalescence. Theodore Roosevelt very wisely said: "Our national health is physically our greatest asset. To prevent any possible deterioration of the American stock should be a national ambition and the preservation of national vigor should be a matter of patriotism." In these sentiments I heartily concur as will all other members of the medical profession, but we know that before the causes of mental diseases can be eradicated we must supplement our increasing efforts by the practical co-operation of the state government, by the power of the press which we earnestly bespeak as a great educational force, and by the sentiment of the people which will never crystallize effectively in deeds until enlightened and directed.

Much publicity has recently been given through the lay press to the miraculous cures that have been effected among the patients at the State Hospital at Trenton, New Jersey. Dr. Henry Cotton, the Medical Director, claims that two-thirds of the patients in his institution are cured by X-ray, laboratory, dental and surgical facilities. Whether this extraordinary statement be true or not, the fact remains that a splendid and most commendable effort has been made to transform a hospital for the insane into a clinic—a jail into a hospital. We have formulated elaborate plans for establishing surgical clinics at the St. Joseph Hospital upon the completion of the surgical building at that place. Our operating room equipment in the new surgical hospital at Nevada is the equal of any in the state. We propose to correct all operable conditions on admission and at the same time reduce the number of operable cases which

have been accumulating during many years, believing the patients will be able to enjoy occupational and other special therapy and their economic value to the state be increased. Will the leaders in the profession in Missouri lend their services to us in order to make our hospitals the equal of the New Jersey institution?

The enlistment of the medical profession in these activities brings into the cause the most potent and influential factor of prevention, the family physician, the one person who has the first and last word in shaping the destinies of the race, the one person who has access to the sacred precincts of the home. Arm him with the facts being gathered today and the battle is half won. Every physician who sends his patients to the state hospitals should manifest more interest in the course of the psychosis and receive the benefit of the discussions of the men who direct their treatment. These patients should not be forgotten by the family physician. I beg every member of this Association to make as many visits to our hospitals as his time will permit.

I trust that I have presented to you enough to convince you that the care and treatment of the insane in the state hospitals of Missouri, while not perfect any more than is any other human agency, is proceeding along humane and scientific lines with the aim and purpose animating all who are charged with the duty of conducting the affairs of this department to put forth their best endeavors to render this service the best of any service in the state administration and to give the State of Missouri, with its many facilities, its proper place in the field of practical psychiatry.

THE TWO STAGE OPERATION FOR THE RELIEF OF CERTAIN INFECTIONS OF THE BILIARY PASSAGES*

WILLIAM P. GLENNON, M.D.

ST. LOUIS

By infection of the bile passages I would have you include not only cholecystitis and cholangitis but also cholelithiasis, as most of the modern writers agree that stones in the bile passages are due to infection.

The two-stage operation I have in mind is a preliminary cholecystostomy, preferably under a local anesthetic, and after a period of from two weeks to six months the second stage of the operation. This second stage is usually a cholecystectomy, but it may be a cholecyst-gastrostomy, a cholecystoduodenostomy, or some other operation would be the procedure

of choice, the principle being that a cholecystectomy as a complete measure in the relief of these infections is seldom justified.

The reasons why I advocate this method are briefly as follows: Infections primarily in the gall-bladder do not long remain localized there but tend to invade other organs and structures, chiefly the pancreas, the common bile duct, the hepatic ducts, and the liver.

Pancreatitis complicating infections of the bile passages is rather common. Linder says that at least 7 per cent. of all gall-stone cases are associated with pancreatitis, and Judd reports as high as 26 per cent. in a series of 1,290 cases. Deaver observes that most cases of chronic and subacute pancreatitis are associated with infection of the bile tract.

Common duct complications are met with frequently and every surgeon has experience with these conditions.

Intrahepatic stones are more common, I believe, than the literature would lead us to infer, the condition being frequently overlooked by the surgeon. Beer, in 1904, found intrahepatic stones in 2.5 per cent. of a series of 250 patients who died from gall-bladder disease, and Linhartz describes a case in which the large and small intrahepatic ducts were filled with many calculi in various stages of formation, while the gall-bladder was entirely devoid of stone.

Graham in 1918 found that 87 per cent. of patients operated on for cholecystitis suffered also from hepatitis. McCarthy and Jackson this year confirm Graham's report, and further conclude that chronic cholecystitis is very frequently if not always associated with chronic hepatitis.

Whether any one or more of these complications, viz., pancreatitis, duct complications, or hepatitis, are present in a given case may be impossible to discern before operation, and not very accurately after opening the abdomen. A cholecystectomy alone in the presence of any of these complications may not relieve the symptoms, and later on further surgical interference would be exceedingly difficult so that your patient is in a worse condition than before. To my mind the logical treatment for an infected gall-bladder with any of the above-mentioned complications present would be drainage. If we remember that we are dealing with an extensive infection (low grade, it may be true), then it follows as an elementary surgical principle that drainage should be instituted. Hence preliminary cholecystostomy.

Cholecystostomy is the simplest, easiest, and the most efficient method of draining the stagnant bile passages and relieving the congestion or infection in the liver and pancreas, and may be performed, if we choose, under

*Read before the St. Louis Medical Society, March 28, 1922.

a local anesthetic. This operation will give you a symptomatic cure (for a time at least), improve the patient's general condition and at the same time indicate to the surgeon the patient's operative risk. It may be that in very old and debilitated patients no further surgical treatment would be justified. However in a majority of cases a second operation will be necessary as it is doubtful if a gall-bladder once infected and particularly if further injured by decompression, ever restores itself to normal and becomes a healthy organ.

The second stage of the operation may be a cholecystectomy, or whatever other operation is indicated, depending on the pathological findings. A diseased appendix would of course be removed; a chronic pancreatitis obstructing the entrance of bile into the intestines would demand cholecystgastrostomy or cholecystoduodenostomy; a common duct stone removal, and so on, the surgeon using his judgment as to the nature and extent of the operation in each particular case.

Crile recommends the two stage as the safest procedure in all jaundiced cases coming to operation, and in fact most men doing gall-bladder work practice this method occasionally, either intentionally or of necessity.

The objections that would naturally arise in regard to doing gall-bladder surgery in two stages are: 1. Prolonged morbidity. 2. Technical difficulties in the second stage on account of adhesion incidental to the first operation. 3. Objections on the part of the patient to subjecting himself to two operations.

All these objections are I believe more than counterbalanced by the added safety as well as by the prospects of a more certain cure.

The present methods, according to Mayo, only give us about 60 per cent. of complete cures in gall-bladder surgery.

Lister Building.

EPITHELIAL PROLIFERATION. DIFFERENTIAL PRESSURE AS AN AID IN THE GROWTH OF EPITHELIUM ON A DENUDED SURFACE

E. D. TWYMAN, M.D.

KANSAS CITY, MO.

Epithelium proliferates readily when subject to a degree of pressure which restrains the growth of granulation tissue. The mechanism of this restraint I believe to be as follows: Granulation tissue consists of many loops of capillaries with little cellular filling. Capillary pressure being 20 to 40 mm. Hg. per sq. mm.,¹ it follows that a degree of pressure

in excess of this amount collapses the capillary wall and restrains the formation or growth of any additional capillary loops. To this degree of pressure epithelium is indifferent, or relatively so, and growth proceeds.

The first statement has been found to hold in a series of cases over a period of five years during which we have had the matter in mind. The exact means of accomplishment may vary widely. It may even be accidental. The ready growth of epithelium under a scab or crust may be partly due to this principle, and it may be a factor in the growth of skin under the paraffin wax preparations. In practice, I have accomplished it by strapping with adhesive plaster, not with heavy traction as with the

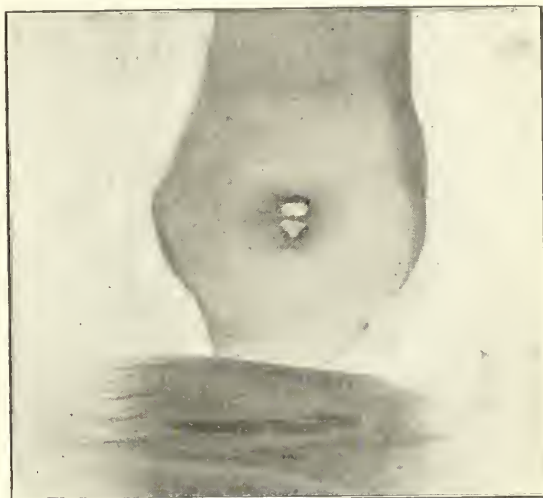


Fig. 1. A granulating surface showing bar of epithelium grown across from side to side by strapping across it with adhesive plaster.

idea of pulling the edges together, but flat strapping for surface pressure. In some cases where the denuded surface is depressed below the surrounding skin a pad is placed over the first loosely applied adhesive layer and pressure produced by a second layer of strapping over the pad. This has been found to produce results better than is had by merely bridging over the gap so that nothing is in contact with the granulations but air. The pressure required is one sufficient to blanch the finger-nail white. Swelling or growth after the application may increase the pressure under the dressing after it is applied so that it may be effective later though not at first. There are some preliminary requirements. Infection as an element must have been eliminated, and if superfluous granulations or scar tissue of that origin have already formed they must be separately dealt with and removed. But when the problem has been reduced to one of epithelialization versus granulation the use of differential pressure by some means or other is

1. Howell, W. H.: Text Book of Physiology. 7th Edition, p. 502.

a valuable aid and is the point to which particular attention is invited.

I do not overlook the fact that the lack of mesh frees one from the entanglement of tissue in the dressing as in using gauze, and that this has been the accepted explanation for the beneficial results under adhesive plaster. This theory superseded older ones, i. e., that the skin edges were pulled together, or that the epithelium was pulled out over the granulations, or that the adhesive acted as a bridge or support for the epithelial bridge. There is some truth in all these contentions. I am convinced that under some conditions skin edges can be pulled together very successfully, or pulled down over a stump, as in treating finger amputations done by the guillotine method.

The differential pressure theory seems to be my own hobby. I have believed in it for five years. For two years I have proposed it for criticism at the annual clinical evening of the Jackson County Medical Society, held at the Children's Mercy Hospital and have shown cases treated in this way. I am indebted to Mercy Hospital and to Dr. C. E. Nickson for much material and support. My thesis has rested on an estimate of the results of the strapping as compared with those obtained by other methods and was of course subject to prejudiced observation.

However, in the accompanying photograph of a skin defect on a case at Children's Mercy Hospital there seems to be something in the nature of concrete evidence favorable to the differential pressure theory. This granulating defect, one and one-eighth inches wide, was ordered strapped. Through a fortunate misunderstanding a narrow strap, only three-sevenths inch wide was applied straight across the wound and remained six days. When removed it was found that a narrow strip of epithelium had proliferated entirely across the wound from side to side. This strip however was at no point as wide as the strip of adhesive that covered it and the average was only about one-half that width. Some proliferation had also occurred around the edges of the defect.

As being favorable to my theory one notes the excessively long strip that grew across under the adhesive strip as compared with the failure to cover the remainder of the defect. Some value as an explanation of this occurrence must be given to the older theory of cell entanglement in the gauze mesh as abundant evidence exists to prove the worth of this contention. Without disregarding this factor, which is undoubtedly effective in a certain measure, I still believe that something more is required to explain the phenomenon of strip growth of epithelium seen in this picture. If the entanglement theory were alone

responsible the strip of epithelium should have become as wide as the protecting strip of adhesive, i. e., three-sevenths of an inch. There was very ample time for this much lateral proliferation while the longitudinal proliferation was covering one and one-eighth inches. Note also the fact that the epithelial strip grew only about one-half as wide as the adhesive plaster protection or, as it might seem, only on that portion on which pressure of the small strap might be expected to be effective in collapsing the capillary walls.

416 Argyle Building.

THE FOCAL INFECTION IDEA*

RALPH KINSELLA, M.D.

ST. LOUIS

Focal infection is not purely a popular expression. It denotes a sound idea recognized in bacteriology for at least half a century. But the idea was not as great an influence on clinical thought and the understanding of infectious processes until 1911 when Billings called attention to the clinical importance of certain infected foci in the body as causes of other local and general diseases and called such diseases focal infections. In the decade which has elapsed the term has become extremely popular. Much experimental work has been done to furnish a firm basis for the idea, and a multitude of clinical reports have been published in its support. We have reached a stage in the development of this idea when it is timely to review the facts and predict if possible the attitude of the future.

The fact that a local infection influences the condition of the body generally and may lead to local disease elsewhere is a principle clearly recognized in the writings of Virchow. But this influence was regarded as due either to the exhaustion of the body's resources or to the distribution of toxic products from the primary infection or of bacteria which transplanted themselves in points suitable for their life and propagation. These are two definite clinical situations universally recognized. For example, a neglected empyema could lead to general retrograde changes without demonstrable transplantation of the bacteria causing the empyema either in the blood stream or any other locality; or, on the other hand, a pharyngeal abscess could frequently lead to similar abscesses in other parts of the body, containing identical bacteria obviously carried there by the blood from the original infection.

In a focal infection either mechanism may

*Read before a joint meeting of St. Louis Medical Society and the St. Louis Dental Society, March 21, 1922.

be at work. There is no new arrangement of forces. But the expression compels the mind to regard certain clinical diseases, such as arthritis, nephritis, cardiovascular defects, and myositis or myalgia, as peripheral effects of certain local infections such as may exist in the teeth, tonsils, sinuses, bronchiectatic cavities, gastrointestinal ulcers, gall-bladder, appendix, genitourinary tract, or skin. This is the original picture offered by Billings. It created a clinical attitude. It focused attention on the peripheral effects above noted. It stimulated more searching physical examination. The abuses which may have followed were such as attend the execution of any new plan in medicine which has been enthusiastically acclaimed. The point it is desired to stress is that the idea of focal infection, as Billings himself indicated, does not require the employment of new conceptions of infection, but rather brings the old mechanisms into play in certain clinical states where the operation of these forces had not previously been emphasized.

The framework of proof which has been brought out in support of the idea of focal infection is both experimental and clinical. Let us briefly review both.

From the beginning of the use of this idea the attempt has been made to make the clinical interpretation flow from experimental facts. As a matter of fact, experimental effort seems sometimes to have been guided and perhaps prejudiced by clinical conclusions. Concerning this point the remarks of Dr. Jane-way are pertinent: "If you cultivate from the tonsils or teeth of patients suffering from an obscure disease a particular organism and with that organism make a vaccine, and after treatment with this vaccine note improvement in your patient, and from this conclude that you have demonstrated the cause of that obscure lesion, you are not going to advance the science of medicine. You may have some reason to believe that the organism stands in relation to the lesion, but the relationship is not proven by such an experiment. You cannot prove the cause by the cure and the cure by the cause at the same time. An autogenous vaccine is not a vaccine obtained from anywhere in the same patient but only from the lesion itself or the circulating blood. I am not going into the discussion of the question of focal infection, but I say that if you draw such conclusions as to the relationship of the focus and the remote lesion, you are putting conclusions into the premises of your argument and taking them out again."

These remarks apply not only to the clinical investigator who uses vaccine but to the experimental investigator who uses animals. Both assume that the disease under study is

related in origin to an infected focus. Both introduce a conclusion into the premises. The production in animals of lesions similar to those in a patient by inoculating the animal with a culture derived from the patient's oral cavity is an experiment which is not conclusive and introduces a mental process into the science of medicine which is not constructive. One wonders why so many bacteria of the mouth have been discarded and only the streptococcus used for these experiments. Furthermore, one is sometimes thankful that such diseases as typhoid were of proven etiology before the streptococcus became popular.

The streptococcus is a heterogenous variety of bacteria, mostly saprophytic. Yet we are asked to believe that these inconstant organisms produce a great variety of diseases. How can we harmonize such saprophytic tendencies with such varied pathogenic activity? The answer demands that we accept transmutation although there is no accepted proof of this. The answer also proposes a property for these streptococci called elective localization. But it is difficult to comprehend how the same focus of infection—for example, the tonsils—can endow a streptococcus with affinity now for the stomach, now the gall-bladder, now the joints, now the spinal cord, or what not. We cannot escape the conviction that even if the streptococcus is concerned in the production of so many disorders, there is operating another more important agency which up to the moment has been ignored. It may be within the dream of the endocrinologist some day to shed light on this feature of our ignorance; or the influence of anaphylactic mechanisms may be announced as the missing factor. As to the proof which the use of vaccines offers for the bacteriology of focal infections, we can refer to no more striking statement than that of Billings himself in 1916 in discussing such vaccines: "The use of any remedy which is not rational is demoralizing to the profession and to the sick."

Therefore we feel that the original experimental basis for "focal infection" has been seriously weakened. The correct one is in the hands of the future investigator, and the principles of infection as we have received them at the hands of Theobald Smith, Loeffler, Wassermann, are still our guides.

Concerning the clinical evidence we cannot be so dubious.

The practice of everyone contains instances of recovery from arthritis following the removal of infected foci. This is only one of many similar observations. It is perhaps true that the immediate have been more favorable than the ultimate results of such removal. But this does not remove the fact that some good has been done and a doctor has been en-

couraged to search all his patients for such infections. We should not be disappointed if we have failed to find the mechanism by which the arthritis occurred and its cure accomplished. There is no more interesting field for research in infectious diseases. However, as long as we use the expression "focal infection" we will continue to regard such focal infections as diseases in which an infected focus transmits its bacteria to distant points—a view which we have seen has not been proven. But it would be wrong to abolish the expression. It has made doctors more searching in their examinations. It has given thought to experimental investigators. It has made us focus our attention on certain obscure infections in a way no other expression had done previously. It is like Ehrlich's "side chain theory" in regard to this peculiar usefulness in appealing to the imagination.

There is still need of making our clinical proofs more convincing. The subject is too often restricted to the sphere of conversational discussion rather than scientific reporting. The literature contains too many articles on streptococcus infection in which streptococci were not studied. The clinical protocol is frequently absent. The subject deserves the best efforts we can bring to bear on its elucidation so that more patients may be helpfully treated.

600 S. Kingshighway.

DIGITALIS, AN EXCELLENT BUT DANGEROUS THERAPEUTIC AGENT*

J. F. CHANDLER, M.D.

OREGON, MO.

Like the scalpel, digitalis may be the means of saving life when used by one who knows, but death dealing when wielded by one who lacks knowledge of its proper use.

To many physicians digitalis is the "first thought" in the treatment of heart disease, regardless of the etiology of the disease, condition or age of the patient. With many practitioners an irregularity of the rhythm, or beat of the heart, whether from functional or organic disease, regardless of the condition of the stomach or other organs, or age of the patient, calls for the administration of digitalis.

In fact, for years digitalis was heralded as the great sheet-anchor in treatment for disturbances of the heart, regardless of the cause.

This has been true to such an extent that many physicians lost sight of the physiological action of the drug in an attempt to obtain

a preparation that would not disagree with the patients.

Manufacturing pharmacists have taken up the cue and put out the tincture of the drug under other than the official name, claiming that their product is superior to the pharmacopoeal tincture. In some instances this may be so. However, did we give as much thought to the administering of the drug as a few manufacturing pharmacists have given to the preparation of the tincture, we would know more concerning the use thereof and the official tincture would meet our requirements. The art of administering comes only through thorough examination of the patient, by which we may learn the condition we have to treat. While it may not always be possible to foretell the danger which may result from the use of the drug, by being thorough in examination of the patient we may avoid mistakes and may, in some instances, be the means of saving life.

I shall not take up consideration of the indications for the use of digitalis, but will direct your attention to a few contra-indications as I understand them, hoping to bring forth a discussion from those present by which I, too, may be enlightened.

I will not discuss digitalis as a diuretic. In this connection I would quote Shoemaker: "As long as the functions of the kidneys are maintained, it has been observed that symptoms of so-called accumulation are not apt to arise." The fact that we know so little concerning the fate of its active principle in the body—the source through which digitalis is eliminated—makes the drug the more dangerous in senile cases, where organs are crippled and accumulation more likely to occur, resulting in action other than that desired.

I purpose to confine my discussion, principally, to the danger of the use of the drug in the treatment of diseases of the heart in senility and those past middle age, for I think it is mostly after this time of life that danger becomes more manifest.

Nasher in his book on Diseases of Old Age has this to say in regard to treatment of the heart: "No interference while compensation is complete." In other words, do not give digitalis or any other cardiac drug while compensation is going on—let the heart alone.

I would suggest that in all instances, take blood pressure, examine the arteries and the urine before giving digitalis. In case of emergency, sudden failure of the heart, digitalis, even though given hypodermically, acts too slowly. Whenever digitalis is indicated there is always time to take blood pressure and analyze the urine.

Barthlow, perhaps the greatest therapist in his time, tells us in his book on therapeu-

*Read at a Meeting of the Holt County Medical Society.

tics that digitalis disturbs the stomach and gives rise to nausea and vomiting, and frequently purges. Thus it is contraindicated in gastric irritation and in some intestinal troubles common in the aged. The same author further states: "A marked contraction of the arteries takes place under the influence of digitalis." A knowledge of the fact that the increased power of the systolic contraction of the heart and the greatly increased resistance in front from a narrowing of the caliber of the blood vessels produce a considerable rise of the blood pressure, should warn us that careless use of the remedy in senile cases, with arterial weakness, may result in death; the weakened arterial walls fail to withstand the additional strain and rupture takes place. Nasher in his book on Senility cites two cases where apoplexy resulted from the hypodermic injection of digitalis preparations in the treatment of heart failure, death occurring in each instance.

Barthlow further tells us that in diminishing the blood supply to erectile tissue, digitalis lessens the power of erections, and secondarily affects the venereal appetite, producing anaphrodisia, so much to be deplored in presenile cases.

To quote Wood: "When the drug is given hypodermically the slowness of absorption renders it an unreliable remedy in emergency."

Dr. J. Madison Taylor alludes to digitalis as a cardiac hypnotic, thus: "The chief value of digitalis lies in its power to control the ventricular rate when auricular fibrillation has come; its influence rests the heart by prolonging the diastole. Digitalis is thus not so much a cardiac stimulant or tonic as a powerful hypnotic, extending the heart's period of sleep."

My suggestion would be: resting the heart by giving it less to do. I think that in many instances in senile cases death is hastened by exhaustion of the heart muscle. Place the senile patient at rest and aid elimination by proper remedies, which do not increase the work of the heart by stimulation of that organ, and make use of the natural sewers of the body by which we get rid of the load to carry—"Clean up and keep clean."

A good rule in senile cases: Be certain of your diagnosis before giving digitalis.

In one instance, a gouty subject, a woman past middle age, suffering from breathlessness on slight exertion, arrhythmia (bigeminal pulse accompanied by systolic murmur), loss of appetite, and languidness. I saw the picture completely change, symptoms disappearing and restoration taking place on the follow-

ing treatment: Sunshine, when available, with medical treatment as follows:

R

Strychnin. sulphat.....gr. $\frac{1}{4}$
Caffein citrat.....grs. xij
Calomelgr. j
Salol $\frac{3}{4}$ ss

M. ft. caps. No. 15.

Sig.: One every six hours.

Another case similar to the other, aside from gout, but suggestive of malarial infection, I gave the same instruction as to sunlight and prescribed as follows, with the result as before:

R

Quin. sulphat.,
Caffein citrat., aa..... \mathfrak{D} j
Ext. euonymi.....grs. v
Strych. sulphat.....gr. $\frac{1}{4}$

M. Ft. Caps. No. 15.

Sig.: One after each meal and on retiring.

MEGACOLON: REPORT OF AN UNUSUAL CASE*

From Washington University Unit, City Hospital.

ELLIS FISCHEL, M.D.

ST. LOUIS, MO.

Megacolon, or enlarged colon, has been encountered in so many various conditions to which the classical description furnished by Hirschsprung in 1886 does not apply that the name of "Hirschsprung's Disease" has of late come to be limited to those cases occurring in children and in which a congenital anomaly of the colon can be assumed to be the cause; for all other cases the term "megacolon" is more correct, as in many instances the etiology can be directly traced to mechanical causes. As "megacolon" is simply descriptive terminology for a gross pathological condition it can with perfect propriety be applied even to typical cases of Hirschsprung's disease.

Megacolon of congenital origin has generally been considered a disease of childhood; certainly the picture presented by a child, say of three to five years of age, who suffers from this condition to a marked degree is a most striking one. But all children so afflicted do not die and it is reasonable to suppose that in adult life we will occasionally meet with a case of true congenital idiopathic enlargement of the colon. Likewise it is reasonable to suppose that if the condition does persist into adult life the longer it exists the more striking will be the pathological picture. True, the

*Read before the St. Louis Medical Society, February 28, 1922.

adult cases are usually of the acquired type incident to a chronic obstruction. These cases do not ordinarily present the typical clinical or pathological picture of megacolon. The case to be described, however, was diagnosed before operation as a case of mechanical obstruction.

Etiology.—Finney¹ in the most comprehensive analysis of the subject in recent years (1908) finds nine etiological factors quoted which he deems worthy of consideration. The only ones of these nine which fit all cases are those which suggest a prenatal malformation or anomalous development of the colon or rectum the exact nature of which is as yet undetermined. Whatever the nature of the anomalous condition may be, its results are very evident: progressive dilatation with or without hypertrophy of the muscle coats. In other words, whether the obstruction be due to a congenital defect in the development of the colon, or to some form of mechanical obstruction, or to spasm of the circular fibers in the lower part of the gut (which are the three chief etiological theories quoted by Dowd²), the main etiological factor is the interference with the normal excretory function of the colon, sigmoid and rectum.

Pathology.—These colons present dilatations of varying degree. The case to be presented shows more clearly than words to what an extreme the dilatation can proceed. The histological picture is that of hypertrophy as well as of dilatation, the hypertrophy usually being most marked in the circular muscular coats. Occasionally atrophy of all the layers of the colon is encountered, the enlargement being due to a simple increased intracolonic pressure without compensatory hypertrophy.

Symptoms.—The symptoms of this malady might easily be deduced from the pathological picture. The most prominent are: constipation of a most aggravated type, abdominal distention, intermittent diarrhea, loss of appetite, emaciation, harsh, dry skin (except over the abdomen where it is apt to be shiny and glistening), and an apathetic expression.

The constipation is the most pronounced symptom; it is usually present from early infancy, becomes progressively worse and finally bowel movements are obtained only with strong purgatives and enemas. It is not unusual for cases to go two or three weeks without defecation and may go for as long as three months. Constipation sometimes alternates with attacks of diarrhea from which the patient obtains temporary relief. These symptoms are all classical; none of them were present in the case here reported. Physical ex-

amination reveals an abdomen which is most often described as "barrel shaped;" the greatest circumference is above the umbilicus, the costal angle is wide and obtuse, and the plane of the chest wall is almost horizontal. Peristaltic waves may be in evidence; the abdominal veins are distended. To percussion, there is tympany everywhere; or there may be dull areas corresponding to areas of fecal impaction. Liver dullness is reduced; borborygmi may be present. These physical findings were all present in the case here reported, the salient features of which are as follows:

J. S., age 48, colored, occupation laborer, lives in St. Louis, never married, entered City Hospital No. 1, July 18, 1918, with a receiving room diagnosis of "volvulus; fecal impaction." When received in the ward he had a temperature of 97 degrees, pulse 64, respirations 20. He stated that he had come to the hospital because he had had no bowel movement for five days and was beginning to have general abdominal discomfort associated with slight trouble with breathing. He had been treated by his own physician who had given him Pluto water and epsom salts, neither of which remedies had produced a bowel action. His physician had then advised him to come to the hospital. Shortly after entrance he was given a soapsuds enema which returned clear with a small amount of fecal matter. That evening he complained of difficulty in respira-

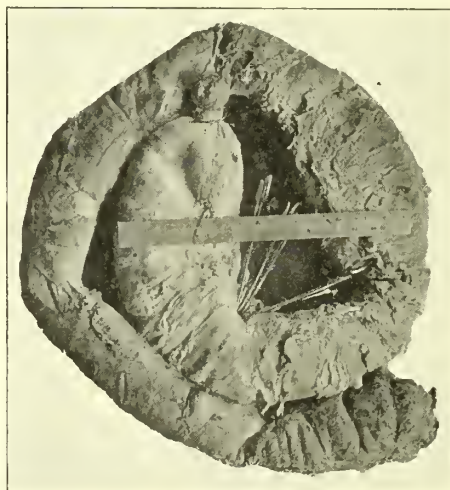


Fig. 1.

tion; a turpentine-glycerine enema was given without result. There was no evidence of prostration and the general condition of the patient was such that the resident staff did not think him sick enough to call the visiting surgeon. I saw him in the course of ward rounds at about 12 o'clock the following day. The physical findings were: The patient was a well developed, well nourished, colored male. Expression somewhat anxious, respirations slightly labored due to short inspiratory excursion. The abdomen presented a remarkable picture of extreme distension; the costal angle was obtuse, yet from the lower end of the sternum the abdomen rose almost at a right angle. The skin was smooth and glistening; two large peristaltic waves above and below the umbilicus were plainly visible. On palpation, the peristaltic waves could be felt; there were

1. Finney: Congenital Idiopathic Dilatation of the Colon. S. G. & O., 1908. Vol. VI, p. 624.

2. Dowd: Surgical Treatment of Megacolon. Ann. Surg., 1921. Vol. LXXIV, p. 468.

no other tumor masses or points of localized tenderness. On percussion, there was exaggerated tympany everywhere but the "tinny" note which accompanies gangrenous, distended gut could not be elicited. Liver dullness was much diminished. Rectal examination failed to locate a tumor. The heart and lungs to routine examination were normal. On close questioning, the patient insisted that his bowels had moved regularly every day until the onset of his present trouble, that he had never vomited, never noticed blood in his stools and had never taken an enema in his life until the day before he entered the hospital. He was subject to "stomach cramps," however, and attributed his present difficulties to eating yellow cheese and drinking bad water in the country. A diagnosis of acute bowel obstruction due probably to a malignant tumor of the sigmoid was made and immediate laparotomy advised and accepted.

Operation July 19 under ether anesthesia. Midline incision from two inches above the umbilicus to the symphysis pubis. On opening the peritoneum, what appeared to be the anterior wall of the stomach, tremendously hypertrophied, presented in the wound. On investigation this proved to be the transverse colon; further investigation showed the sigmoid and the descending colon to be involved in as great a hypertrophy as the transverse colon, the descending colon having a distinct mesentery. No tumor could be palpated in the rectum. The ascending colon and cecum were likewise markedly hypertrophied, but not to as great an extent as the other portions of the gut. A large trocar was inserted in the transverse colon hoping thereby to empty the intestine sufficiently to permit the colon to be replaced in the abdomen with the establishment of an artificial anus. This procedure was entirely unsuccessful as not even the transverse colon was appreciably diminished in size. The condition was recognized as a true megacolon and the only procedure which seemed possible under the circumstances was a complete resection of the colon. This was done beginning at the proximal side of the ileocecal valve and terminating at the distal end of the sigmoid. Even to the point where the rectum appeared as a peritoneal covered organ the dilatation and hypertrophy of its muscular wall was apparent. The distal end of the severed sigmoid was inverted and an end to side anastomosis of the ileum to the anterior wall of the rectum was performed. This was exceedingly difficult owing to the thickness of the rectal wall and the depth at which the anastomosis was made. The anastomosis was demonstrated to be water tight by enema and the abdomen was closed in layers with rubber dam drainage to the depths of the pelvis. The patient left the operating table in moderate shock. Time of operation three hours.

The postoperative course was stormy in the extreme. After rallying from the primary shock of the operation, a well developed peritonitis developed on the third postoperative day; hiccoughs, vomiting and abdominal distension were prominent symptoms. Two days later the patient began to have liquid bowel movements per rectum. First wound dressing on the sixth postoperative day only moderate drainage. On the tenth postoperative day patient became irrational (temperature 102) got out of bed and had to be forcibly restrained. The abdominal wound broke down and by the twelfth postoperative day was discharging a large amount of fecal material. Improvement was not noticed until the seventeenth day. Fecal discharge from the abdominal wound had entirely stopped twenty-one days after the operation and from this time on recovery was rapid. The patient was discharged seven weeks after the operation with the wound entirely healed.

The patient was lost sight of and did not again appear until June 1, 1921, when he came to my office to consult me as to the advisability of an operation for an inguinal hernia which had come down the day previous and had caused him a great deal of pain. After I found that the hernia was easily reducible I became much more interested in his bowel function than in his hernia. He stated that he had worked steadily since his discharge from the hospital and had suffered little inconvenience from the absence of his colon. He had two large, soft stools daily, "regular as clock work," one in the morning and the other between seven and eight in the evening. There was considerable urgency, however. I was most anxious to get an X-ray of his rectum and ileum after barium enema. The day before he was to report to Dr. Mills, who had kindly consented to make the pictures, I had him in my office for proctoscopic examination. I found that he would not even submit to digital examination of his rectum, and in spite of most emphatic promises to report to Dr. Mills the following day and to come to me again whenever I requested him to, he has not responded to any of the inquiries I have sent him.

Pathological Report.—From Washington University Medical School, Department of Pathology. "Microscopic sections taken at several different places throughout the gut showed abundant, large, active goblet cells in the epithelium of the mucosa. The connective tissue of the mucosa is infiltrated with numerous plasma cells. The submucosa is rather dense with much fibrous tissue. There is a marked hypertrophy of both the circular and longitudinal muscle layers, particularly the latter. There is some thickening of the serosa with an increase of fibrous tissue. Polymorphonuclear leucocytes are very scant. There is no evidence of an acute inflammation."

It might be of interest to review the various methods of treatment which have been employed in cases of megacolon. According to Dowd in statistical studies of large series of cases by various authors the mortality from medical treatment ranges from 66 to 74 per cent.; from surgical treatment the same authors give a mortality of from 34 to 48 per cent. In an analysis of reported cases from 1908 to 1921 (143 cases), Dowd finds a surgical mortality of 28.7 per cent. Thirteen different types of operation are tabulated, only three of which (partial colectomies) may be considered as "obvious procedures," in cases in which more than a palliative operation is desired. These are: one-stage resection, two-stage, intra-abdominal resection, and extra-abdominal resection in two or more stages. His table gives a mortality rate of 26, 16 and 8 per cent., respectively, for these three procedures. Dowd favors the two-stage, extra-abdominal resection by the Mikulicz method in all cases in which this method can possibly be employed. In the case herein reported it is doubtful if any procedure other than complete resection of the colon could have been done; it is conceivable that the hepatic flexure might have been anastomosed to the sigmoid.

The striking features of the case herewith

reported are the extremely large size of the entire colon, the total absence of the usual subjective symptoms of congenital idiopathic dilatation of the colon, and the success of a prolonged radical surgical procedure undertaken as an emergency measure. The success of the operation can be directly attributed to the natural resistance of the patient and the splendid work of Dr. J. C. Urien, the junior interne, who attended to the arduous details of the postoperative treatment in a most efficient and painstaking manner.

400 Metropolitan Bldg.

IMMEDIATE CURE OF CHRONIC CATARRHAL DEAFNESS; PAINLESS CURE OF CHRONIC EAR DISCHARGE, INCLUDING THE IDEAL MASTOID ANTRUM OPENING BY WAY OF THE AUDITORY CANAL; CASES STILL RELIEVED 15 TO 25 YEARS OR MORE AFTER-WARDS*

ROBERT BARCLAY, M.D.

ST. LOUIS

No matter what your special sphere of practice, there are two classes of patients that you are always meeting, going about as they are everywhere constantly among us, that you can identify at once, offhand, without technical skill and experience. They are deaf people who speak in an abnormally moderated or low tone of voice, yet hear better in a noise or noisy place—as in a moving street car, and those with chronic ear discharge or “running ear.” The former are usually victims of chronic aural catarrh—generally regarded as hopelessly incurable; the latter, of tympano-mastoid focal suppuration, generally regarded as curable only by the conventional cortical mastoid operation. Anything that offers a rational hope of radical relief of these patients without compelling their submission to the interminable, uncertain, futile conventional methods of treating chronic catarrhal deafness, or to the capital risk, suffering, disfigurement, deafness, and possible complications that attend the conventional cortical mastoid operation, certainly merits a few moments of our careful consideration, and if such be properly presented to you I feel confident that you will deem it a pleasure as well as your peculiar privilege to bear a new message of hope to these patients and to your technical associates, with a view to encouraging a more general acquaintance with and effort to improve this method, and a more frequent and early resort to it as a more rational and humane method of serving these desperate and hopeless cases. Allow me to

specify a little more clearly just the class of patients for which this new method is designed and most appropriately indicated: First, those afflicted with chronic deafness from chronic catarrh, with or without other symptoms, who speak habitually in an abnormally moderated or low tone of voice, yet hear better in a noise; and those with persistent ear discharge or chronic “running ear,” with or without other symptoms, and with or without marked mastoid involvement, unless accompanied by extensive necrosis of the attic and mastoid process or unquestionable intracranial involvement. But, even in the most desperate of these latter cases, the newer method—which includes the ideal opening of the mastoid antrum by way of the auditory canal—may prove valuable as a preliminary step, and alone may effect a cure.

In deafness from chronic catarrh the symptom-complex above mentioned signifies a condition in the transmitting mechanism that prevents the energy of sound waves, coming from without, from reaching the nervous hearing apparatus of the inner ear, and that augments the sound of the patient's own voice to himself, deceiving him into lowering it unconsciously, which has been variously explained. It can perhaps best be regarded, tentatively, in harmony with the most recent theory and investigations as to the mechanism of audition, so ably expounded by Prof. A. G. Pohlman of St. Louis University, as due to an abnormal condition in the transmitting mechanism or its linings, admitting of excessive dissipation of energy of sound waves coming from without, before reaching the inner nervous apparatus, with diversion of energy of sound waves of the patient's own voice inward, due either to defective escape of this energy outward from outer lying parts through its natural channels of exit, or to excessive receptivity of this energy by the same affected structures. And better hearing in a noise indicates that parts of the transmitting mechanism are jarred loose by the noisy vibrations into a condition more nearly that of normal contact and functional transmissivity. The above symptom-complex entire, however, could hardly exist if there was a condition of bony ankylosis in the transmitting mechanism, or if the deafness was of nervous origin.

The structural changes in chronic catarrh are shown by modern pathology to be permanent, which explains why clinical experience for centuries has always found this condition beyond the remedial influence of the conventional medicinal and other non-surgical means. Chronic deafness from chronic catarrh is necessarily incurable by such means; treated thus, the percentage of cures is zero, and the patient's condition is hopeless. Conservative

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

surgery alone, however, is rational here and it alone offers a rational hope of salvaging what otherwise must prove a total loss.

Because of the crossed innervation, so to speak, of the bilateral hearing apparatus, the functional interests of both ears are involved in every case and must be regarded in prognosis and treatment, inasmuch as the morbid condition in either ear tends to impair the functional integrity of the other one. It is therefore imperative occasionally to employ this surgical resource intelligently as described below, upon the affected ear, even where it may not promise probable material improvement of its hearing, inasmuch, also, as this method tends to conserve even if it does not fully restore the hearing of the other ear, which otherwise might have been lost in both. Similarly, with regard to the importance of employing it upon both ears in cases of bilateral involvement.

In the "discharge" cases, suppuration persists, usually either because of local vasomotor paresis in the inflamed area—most frequently through exhaustion of the reflex ganglion from prolonged irritation of disorder or disease in the correlated area, especially that within the distribution of the special dental nerves; or it persists because of a nidus of focal infection—a "nest of mice," as it were, in the "organ loft" or "box shelf" of the middle ear; or because of both.

This "organ loft" or "box shelf" consists of the outer compartment of the tympanic attic—the space between the bodies of the malleus and incus and the outer wall of the tympanum, termed the "malleo-incudal 'niche'"—and the mastoid antrum. These two spaces—the "niche" and the "antrum," as Politzer declares, and as other eminent special aural anatomists also depict, together constitute a single cavity, with a normal surgical drainage from the mastoid antrum, by way of this malleo-incudal niche, through Shrapnell's membrane and the membrana flaccida, into the inner end of the auditory canal. This was demonstrated at our last annual meeting by their text and figures, presented in enlarged photographs taken directly from well-known works.

Mastoid suppuration usually has its prime focus of infection in the antrum; rarely in the terminal cell or cells and then only in cases of direct injury, general infectious diseases, or syphilis. In the latter location its prime focus may usually be differentiated by the more extended edema and tenderness about the mastoid tip and the neck, and from the following which specially characterize the localization of the prime focus in the antrum: Greater protrusion outward, forward and downward of the top of the auricle, the

greater edema and tenderness higher up on the mastoid, especially right over the site of the antrum itself; the lesser involvement of the neck; the tenderness, not to pressure, but to slight touch, of the hair over the parietal region—the "hair feels sore" sometimes; and the characteristic edematous sagging of the soft parts at the upper hind portion of the inner end of the auditory canal—the site of normal drainage from the antrum as described above. Right here, by the way, is the place where as long ago as 1893 I advocated surgical drainage of the petro-mastoid antrum for the avoidance of "unnecessary suffering and loss of life . . . without imposing a capital risk upon the patient, when in fact a simple operation within the canal is the only surgical procedure permissible under the circumstances."* And drainage, first here by this route, is that whereby, in an extended special practice of nearly forty years, I have been so fortunate as to have been enabled to proceed thus far with less than six deaths from purulent aural disease, without having been compelled to expose my patients to the risks and ordeal attending the opening of the intact mastoid cortex in more than an equal number of cases, and they but partly identical with those of the fatal class.

In describing, as I shall in simple terms, the steps of the modern method, please remember that some of its more important modifications and improvements of today were unknown at the time some of the cases that I am about to refer to were cured—some fifteen to twenty-five years ago, and that if we had had them then, and our present more discriminating judgment of its indications and our more advanced technique, our results might have been more brilliant and general. However, that this method when appropriately employed, can and does yield results more brilliant and lasting, more immediate and less painful than the conventional methods popularly in vogue, and that it is far more rational and humane, I will now show you by the actual experience of patients who themselves state that, after having been afflicted with profound deafness from catarrh, or with deafness with persistent ear discharge, for from twenty to thirty-four years (one of them for seventy-four years), all other methods at the hands of presumably qualified practitioners for years previously having failed, they were relieved by this method, immediately and painlessly, and today enjoy relief of all their symptoms, with hearing, for example, for whisper at 10 to 39 feet distance as good as if not better than when first relieved, *fifteen to twenty-five years ago in some cases*. Some of these

*Burnett, C. H.: *System of Diseases of the Ear, Nose and Throat*. J. B. Lippincott Co., Phila., 1893, pp. 177-181.

had previously been passed upon by specialists of international reputation. Lest enthusiasm should betray me into any exaggeration however slight in submitting this evidence to you, upon which the wider relief of so much unnecessary deafness, suffering, and even loss of life itself depend, please allow me to present the clinical facts of the patients' experience to you, as far as possible.

While it would be manifestly impossible, upon an occasion such as this, to read these letters* in detail, I shall briefly outline several:

Albert P. Ruckstuhl, St. Louis; now residing with his brother, the well-known sculptor, Mr. Fred. W. Ruckstuhl, New York City; artist. Ear discharge daily for 34 years with deafness; been under the care of the ablest specialists for years; head pains becoming intolerable; mastoid operation pronounced by an eminent European and two most eminent American authorities the only hope of cure; new painless method; immediate relief; no treatment nor recurrence of symptoms during the intervening 19 years; hears now whisper at 38 feet and 48-inch watch at 30 inches.

William Thomas LeMaster, father of Dr. Collins A. LeMaster of St. Louis. Deafness from catarrh for many years becoming disabling; with low-speaking voice and better hearing in a noise; new method; immediate relief; still relieved until killed suddenly while on duty by a tornado 17 years afterwards.

Judge James McCaffery, St. Louis. Ear discharge for 35 years, with deafness, etc. New method; immediate relief; hearing still normal without any recurrence of any symptom, although 19 years have since elapsed.

George C. Linde, St. Louis. Ear discharge for many years, with vertigo, intense head pains, etc.; new method; relief; still relieved 22 years afterwards.

Lee M. Mothershead, Belleville, Ill. Deafness from "catarrh" for more than 20 years; with low-speaking voice and better hearing in a noise; intense head noises; new method; immediate relief; no recurrence of any symptom; hears ordinary conversation; enjoys public gatherings; hears whisper at 13 feet; hearing still improving although more than 22 years have since elapsed.

Mrs. Hugo Rinke, Flat River, Mo. Ear discharge for more than 35 years, with deafness, intense dizziness, head noises, headache, etc.; new method; immediate relief; hears ordinary conversation, preaching at 20 feet, small kitchen clock at two angles at 29 feet; no recurrence of any symptom and hearing still improving although 25 years have since elapsed.

Edwin H. Gabe, Pueblo, Col. Ear discharge for 74 years, with deafness; total for the last 20 years. Other ear heard shouting voice only close up; new method; immediate relief; 2 days afterwards heard ordinary conversation at 13 feet and clock ticking across the ward; 5 months later hearing still improving until hearing whisper at 13 feet; other ear now hears fairly although no interference whatever with it directly; no recurrence of any symptom although more than a year and a half has elapsed.

Claude A. Bennett, Coffeyville, Kansas. Ear discharge constant for 8 years with deafness and intense head pains, becoming intolerable; mastoid operation pronounced by specialists in two Ameri-

can cities and one prominent local general surgeon the only hope of cure; new method; immediate relief; cessation of discharge upon second day afterwards; hearing for whisper at 39 feet; return home upon fifth day; no recurrence of any symptom although a year and more has elapsed.

J. W. Alexander, St. Louis. Ear discharge following "Flu;" extensive mastoid involvement obliterating the post-maxillary, ante-mastoid neck-groove; cortical mastoid operation pronounced by eminent specialist necessary and compulsory; new method; in hospital but 20 hours; relief; normal hearing; no recurrence of any symptoms, although more than a year has elapsed.

Mrs. Genevieve B. Finley, St. Louis. Ear discharge for more than 30 years with deafness; new method; painless, immediate relief; no recurrence of any symptom although nearly 3 years have since elapsed.

Mrs. Maurice Highley, Farmington, Mo. Profound deafness with intense head noises preventing refreshing sleep; speaks habitually in an abnormally moderated or low tone of voice but does not hear any better in a noise or noisy place; prognosis unfavorable for improving hearing, but fair for relief of head noises; new method; painless, instant relief of head noises; hearing of both ears slightly improved 3 years after the original operation.

These fairly represent the clinical experience with this method. One may recall also that Lucae, in the summer of 1890, told Dr. Samuel Sexton, my former teacher and associate, of a case he had operated upon 25 years before in which the good results had persisted up to last report a year later, 26 years after the operation.*

THE NEW OR MODERN METHOD

With the technical details of the procedure, which differ necessarily in the different cases, you are of course not specially concerned; nor is this an appropriate occasion for their presentation. These may properly be left to your technical associate in the case whose peculiar duty as well as special privilege it is to assume the responsibility for the final determination of the propriety of the method in the case, as well as to "deliver the goods" for you whenever possible, under your own watchful eye, and whose technical skill and judgment matured by adequate personal practical experience with the method itself, should of course be always conveniently at your service.

In general terms the method consists specifically of six distinct steps or stages which are to be taken in regular routine order in each individual case, as far as may prove necessary for relief or cure.

What Dr. Fred. W. Bailey, of St. Louis, so happily remarked about surgical procedure in carcinoma of the pylorus or complicated gall-duct disease, where life is at stake, applies with special emphasis here—that, "It

*These letters were part of a paper presented at the Sixty-fourth Annual Meeting of the Missouri State Medical Association, St. Joseph, May 24-26, 1921. Copy of any or all will be furnished on request.

*Sexton, S., and Duane, Alex.: Deafness and Discharge from the Ear. The Modern Treatment for the Radical Cure of Deafness, Otorrhoea, Noises in the Head, Vertigo, and Distress in the Ear. J. H. Vail & Co., New York, 1891, p. 86.

is not the beautiful finished toilet of an operation which marks the careful surgeon, but the end result, whether it be exhibited after one or many stages. Therefore, the surgeon who enters upon his work with a predetermined idea as to just what he is going to do is likely to lose sight of the patient's interests with possible harmful results. All operations which can be brought to a successful conclusion in one stage and at the same time conserve the health of the patient, should be carried out in this manner, but no wise surgeon will ever hesitate to create a second or third stage when the operative findings justify it."*

In both "catarrhal" and "discharge" cases the first step consists of the restoration of normal local nerve control, especially vasomotor nerve control; with removal of all sources of reflex irritation from the area correlated thus with the hearing apparatus, especially that within the distribution of the special dental nerves. The next, that of restoration of missing parts and normal conditions. The third, under local anesthesia, is an exploratory or probatory procedure—simple, painless, harmless—consisting of a small flap opening in the drum head, where present, opposite the stapes. Through this small opening, the joint between the stapes and incus is then severed, and the incus drawn a little away from its contact with the stapes. Any adventitious bands about the stapes are then divided. Technical tests are then made with voice, whisper, and other suitable instruments, to determine the mobility of the stapes, the functional integrity of the deeper apparatus, whether there now be satisfactory evidence of improvement of hearing for one or both ears through the liberated stapes alone, with material relief of subjective symptoms, if any, etc. If the findings prove favorable, the next regular step—still under local anesthesia—may be taken at once; if unfavorable, the flap of the drum head, if one has been made, is replaced at once and a Blake paper disc applied, thus insuring union by first intention or regrowth without harm to other parts or to the hearing. The fourth step, in the "catarrh" cases, taken where the findings of the probatory exploration have proved favorable—still under local anesthesia—consists of the removal of the incus, malleus, and drum head, to provide for admittance of sound waves from without directly to the stapes. In the "discharge" cases, however, this procedure is so far amplified where necessary as to admit of the removal not only of the structures named above but of disease products, and if the antrum is involved, removal of the structures constituting the nidus of

focal infection in the "organ loft" or "box shelf" of the middle ear containing the "nest of mice," by enlarging the space of the tympanum and auditory canal into the mastoid antrum and cells, as far as desired, with suitable instruments, such as the rongeur forceps, the electrically driven hand drill,* etc., as advised by Hartman, Dench, Stucky, Iglauer, Beck and others, thus sparing the patient a capital risk and all the horrors and possible complications of the conventional cortical mastoid operation, pronounced by expert authority "the operation to be most dreaded and avoided by the patient and otologist."** Why then try irrationally to drain the dipper through its handle? Why continue to tear down the front of the house, the wall between the front room and the hall, the kitchen hall door frame and the butler's pantry—making a vast, ghastly surgical chasm of it all, and endangering neighboring vital parts—just to get rid of a "nest of mice" in the "box shelf" in the kitchen, up over the kitchen hall door, when you can do it just as well if not better by going through the hall into the kitchen, remove the bottom and sides of the "box shelf" containing the "nest of mice" through the hall itself, and spare the rest of the building that you never can restore? In either set of cases, in order to insure permanent absence of the drum membrane, by preventing its re-formation, impossibility of infection from the naso pharynx and dessication of the tympanic mucous membrane through lymphatic stasis, the fifth step is taken, which consists of the artificial closure of the Eustachian tube at its isthmus by surgical atresia, as advised by Yankauer. The sixth and last step, of course, is the subsequent care and maintenance of these advantages as far as possible. This concludes the general description of this method.

Just a word in closing: Of course we understand that within the limits of a paper such as this it is possible only to present but a few of the basic principles and these discussed but briefly. Such further information or explanation about it as seems wanting to satisfy your judgment or inquiring mind it would be a pleasure as well as a privilege cheerfully to give. This paper should be regarded only as the seed of cultivation, furthered later by each inquiry, letter or interview on the subject.

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*Work is now being done upon an electrically driven guarded drill, designed especially for the purpose of facilitating the performance of this procedure without difficulty and without danger.

**Stucky, J. A.: *Trans. Amer. Otol. Society*. Vol. XV. Part III. 1921, page 294.

*Bailey, Fred. W.: *Transactions of the St. Louis Medical Society*, April 3, 1922.

THE IMPORTANCE OF BLOOD CHEMISTRY IN CHRONIC NEPHRITIS

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The value of blood chemistry in the diagnosis, treatment and prognosis of chronic nephritis cannot be overestimated, and the fact that blood analysis has become a routine in every well-regulated hospital shows that the profession has been quick to grasp its importance. The general practitioner usually has neither the time nor the facilities to personally perform the various blood analyses, but he should be well informed on their value and the indications for calling on the laboratory worker. In this paper I will consider the value of blood chemistry in relation to diagnosis, prognosis and treatment of chronic nephritis, and under these headings will consider the relative value of the various tests that can be performed. No attempt will be made to present any new data but a brief resume will be given of the facts that are now known to be of clinical value.

Before discussing the pathological variations in the blood it will be necessary to first consider the normal amounts of the various elements involved. The non-protein nitrogen of the blood, while it makes up only about one per cent. of the total nitrogen, is however far more important, because variations in the latter are probably much less constant in relation to disease. The total non-protein nitrogen in normal blood varies between 25 and 35 milligrams per 100 c.c.; urea normally makes up about 50 per cent. of this and therefore varies between 12 and 18 milligrams; uric acid is found in amounts ranging from 1 to 3 milligrams, creatinin from 1 to 2 milligrams, and creatin from 3 to 7 milligrams per 100 c.c. of blood. The amino acids and ammonia make up the remaining per cent. Of these various substances urea is probably subject to the greatest normal variations because it is totally of exogenous origin, being formed by the liver from the excess nitrogen of proteins which are taken into the body as food. Formerly the estimation of urea was considered of great importance, but due to its exogenous origin and the fact that it varies greatly with the protein intake, it has now come to assume a role of secondary importance. Uric acid is about 50 per cent. exogenous and 50 per cent. endogenous origin and is therefore subject to somewhat less extrinsic variation. Creatinin is totally of endogenous origin, probably being formed in the muscles, and is therefore independent of protein intake but depends

wholly on cellular metabolism. Attempts have been made to show that creatinin, which is the anhydride of creatin, is formed directly from this substance but this has not been definitely proven.

Since in nephritis we are concerned with the inability of the damaged kidney to excrete or concentrate these various substances, it is of importance to ascertain the ease with which the normal kidney can handle these same materials. In general the urine contains the non-protein nitrogen elements in a higher concentration than the blood, and it is evident that the degree of concentration is probably directly proportional to the ease with which the substance is excreted. If we compare the per cent. of the total non-protein nitrogen which each of these substances makes up in the urine, with the per cent. in the blood, we find that creatinin is apparently concentrated by the kidney about 100 times, urea about 80 times and uric acid only about 20 times.¹ We may therefore assume that of these three substances uric acid is the most difficult for the kidney to excrete, while creatinin is the least difficult. As will be emphasized later this is of importance in the early diagnosis of nephritis.

The importance of blood chlorides has long been emphasized by the French clinicians but only rather recently has this subject been taken up clinically in this country. The amount of chlorides present in normal blood varies with the part of the blood that has been utilized in their determination. The chloride content of the whole blood varies between .45 and .50 per cent. while in the plasma it is slightly higher, ranging from .55 to .62 per cent. Norgaard and Gram² have recently shown that the chloride content of the whole blood is inversely proportional to the volume per cent. of the red blood cells; that is, the less the volume per cent. of the r. b. c. the greater the chloride content. The chlorides of plasma, however, are absolutely independent of the volume of cells and would therefore be the same in pernicious anemia or polycythemia. Fridericia³ has shown that when carbon dioxide escapes from the blood there is a change in the distribution of the chlorides between the cells and plasma but McLean⁴ has shown that this change is very slight and even in two hours does not materially affect the amount of chlorides in the plasma. Therefore, when chloride determinations are indicated they should be done on plasma and not on whole blood.

BLOOD CHEMISTRY IN THE DIAGNOSIS OF NEPHRITIS

I believe that the day has passed when the finding of casts and albumin in the urine is

considered sufficient evidence on which to base a diagnosis of early nephritis. As examples of conditions which may give a urine containing albumin, casts and even white and red blood cells, I may mention chronic passive congestion of the kidneys from a decompensated heart; pulmonary lesions, including tumors and emphysema which cause back pressure in the venous system, and pressure of tumor masses upon the inferior vena cava or renal veins. Rowntree, Fitz and Geraghty⁵ have shown this experimentally on dogs. They produced the congestion by partial obstruction of the renal veins and in these animals, who for a time appeared healthy, the urine was found to contain large amounts of albumin, casts, white and red cells. A slight hypothyroid condition may also closely simulate nephritis, with the pseudo-edema (myxedema), puffy eyelids, headaches, languor, auditory and visual disturbances, tingling in the extremities, gastric disturbances, and in many cases albumin and casts in the urine. In all of these cases blood chemistry immediately gives the differential diagnosis.

On the basis of blood chemistry findings an entirely laboratory classification of nephritis has been evolved which includes three types: (1) The nitrogen retention type, in which the kidney is unable to eliminate the non-protein nitrogen elements of the blood, but does eliminate the chlorides. This type is characterized clinically by uremic symptoms but no edema until late when the heart begins to fail. The blood pressure is variable. (2) The chloride retention type, in which the chlorides are retained but the nitrogenous elements properly eliminated. In this type uremic symptoms are absent but a general edema is the outstanding symptom. (3) The mixed type in which both the chlorides and the nitrogenous elements accumulate in the blood. This type is characterized by both edema and uremic manifestations.

We will first consider the diagnosis of the nitrogen retention type and must remember that uremic manifestations are present only when the condition is well advanced. I have called attention to the fact that uric acid is apparently the most difficult of the non-protein nitrogen substances for the normal kidney to eliminate and therefore we would expect that one of the earliest manifestations of a diseased kidney would be a retention of this substance. This has been shown to be the case.^{6,7} The uric acid may reach 6 or even 8 milligrams before there is any noticeable retention of urea or creatinin, and may later reach still higher values before there is enough retention of the latter substances to be diagnostic. Since the total non-protein nitrogen normally varies between 25 and 35 milligrams per 100 c.c., it is

seen that an increase of 4 or even 6 milligrams of uric acid, while in itself extreme, when calculated with the total non-protein nitrogen may be obscured, especially when the latter is at the low normal figure. Baumann, Hansmann, Davis and Stevens⁷ compared the value of blood uric acid determinations with the Mosenthal renal test meal in a large series of cases, and conclude that uric acid determinations of the blood constitute one of the most delicate indices of renal function at our disposal, even surpassing the test meal. It must be emphasized, however, that while an increase of uric acid in the blood is one of the earliest signs of chronic nephritis, figures above normal may occur in persons whose kidneys are in no way impaired, the increase being due to a high protein diet, increased cellular catabolism, or severe anemias.⁹ In the first type the uric acid may be reduced to normal by a purin free diet, but the two latter types do not respond to diet, and in these nephritis as a causative agent must be ruled out. In 1919 Upham and Highly⁸ emphasized this and suggested a method for determining the renal concentration power for uric acid, in which blood and urine were collected simultaneously, and the milligrams of uric acid per 100 c.c. of urine divided by the milligrams of uric acid per 100 c.c. of blood. This figure (renal concentration) should be over 18 for normal kidneys. They showed that in cases of frank nephritis the figure reached low values and was lower than normal in early nephritis. In 1920¹⁰ they stated that the above method was probably not a true index of renal function because the volume of urine considered was constant (100 c.c.). To overcome this difficulty they used the formula of Van Slyke.¹¹ Their results with this new method, however, were far from constant in nephritis, and so many other conditions were found which gave the same coefficient as nephritis that it appears not to be much better, if as good, as their first method or the simple blood uric acid. With the patient on a purin free diet for several days preceding the test, and a knowledge of its limitations, an increase of blood uric acid is probably one of the best indices of renal impairment.

The next substance to show marked retention is urea, and it may reach figures of 40 and 80 milligrams before creatinin shows much increase.⁶ There is one point which must be emphasized when interpreting the results of urea determinations, namely that urea is wholly of exogenous origin, being formed from the excess nitrogen of protein food materials. Therefore, if the patient is on a sharply reduced protein diet at the time of the urea determination, it is possible for the urea to be normal or only slightly elevated even when

retention exists, because less urea is being formed. Creatinin shows retention only at a late period and the prognosis is bad.

The determination of total non-protein nitrogen is at the present time very popular and not to be under-estimated, but since the normal variation is almost 10 milligrams, it is seen that a rather marked retention of uric acid may exist and be obscured. I believe however that the total non-protein nitrogen should be the first determination made when uremia or nephritis is suspected, and if it is found normal or only slightly elevated then the estimation of uric acid should be done.

In 1914 Tileston and Comfort¹² made a very careful study of the non-protein nitrogen in various diseases and drew some very important conclusions: (1) They found only three conditions which gave a non-protein nitrogen of 100 milligrams or over, i. e., uremia, acute intestinal obstruction and severe anemias from hemolysis. (2) In passive chronic congestion of the kidneys from cardiac decompensation, etc., they did not find an increase. (3) During the course of a pyelitis an increase probably means kidney involvement. (4) Chronic lead poisoning shows a marked increase. (5) Thirty-six per cent. of the cases of lues examined showed a marked increase. (6) eclampsia does not show an increase and this is an important differential diagnosis between it and uremia. (7) No changes were met with in malignancy which could not be ascribed to renal disease.

In cases where there is great edema but no uremic symptoms, determinations of the plasma chlorides should be performed. Any increase above the normal makes a chloride retention type of nephritis likely. It must be remembered, however, that there are certain other conditions in which the plasma chlorides may be increased. Mosenthal¹³ has shown that in cases of cardiac decompensation, with passive congestion of the kidneys, the amount of chlorides in the urine is markedly decreased and a corresponding rise may therefore occur in the blood. This is important to bear in mind since it is often rather difficult to distinguish clinically between a nephritic kidney which is unable to eliminate the chlorides and a congested kidney similarly handicapped. Cases of severe anemia may also show an apparent increase in the blood chlorides, when the determination is done on whole blood, but the plasma chlorides are normal.¹⁴ Here it is not a true increase or retention but is due to the decrease in the red blood cells and it is the determination on the plasma that gives the true picture.

BLOOD CHEMISTRY IN THE PROGNOSIS OF CHRONIC NEPHRITIS

Tileston and Comfort¹² state that in their series, cases having over 100 milligrams of non-protein nitrogen per 100 c.c. of blood, with one exception, did not live over 35 days. They also found that cases having 100 milligrams or over had a phthalein output of 5 per cent. or less.

Cases in which the non-protein nitrogen cannot be markedly lowered by proper diet and treatment also have a very poor prognosis.

Since creatinin is apparently eliminated by the kidney with the least difficulty and is late in showing a marked retention, it follows that the case must be well advanced if the creatinin values are high. Myers and Killian¹⁵ in a large series of cases have shown that when creatinin is present in amounts of 5 milligrams or over, the prognosis is very bad, and even though the patient feels able to be up and at work, the exitus is not far distant. This statement does not hold good for acute nephritis where the damage to the kidney is only temporary.

BLOOD CHEMISTRY IN THE TREATMENT OF CHRONIC NEPHRITIS

From what has already been said the aid of blood chemistry in the treatment of nephritis may be summed up in a few words. Cases which show a marked retention of the nitrogenous waste products, but an adequate elimination of chlorides, should be put on a protein poor diet but chlorides may be given. On the other hand, when conditions are reversed, i. e., salt is retained but nitrogenous waste products eliminated, there is no call for a rigid curtailment of proteins but salt must be totally withheld. It has even been said that in the nitrogen retention type salt acts as a diuretic, while in the chloride retention type urea will act as a diuretic after all other things have failed. Cases which show an inability to excrete both nitrogen and chlorides must be put on a diet in which both of these substances are restricted.

The effect of treatment can be determined at frequent intervals by blood analysis and a more rigid regime instituted if necessary. Myers and Killian¹⁵ have called attention to the fact that since urea is almost wholly exogenous in origin, it is probably the most sensitive index of the results of dietary treatment.

SUMMARY

1. The finding of albumin and casts in the urine, even when associated with some of the so-called minor signs of Brightism, is not sufficient evidence on which to base a diag-

nosis of early nephritis, because many other conditions may produce this complex.

2. Blood chemistry offers great aid in the diagnosis of early cases.

3. For the early diagnosis of nitrogen retention nephritis uric acid is probably the best guide, since it shows considerable increase before urea and creatinin become altered.

4. As an aid in prognosis, creatinin is perhaps the best guide, since if it reaches and maintains values above 5 milligrams per 100 c.c. of blood, the prognosis is very bad.

5. Cases which show a great amount of edema but no uremic symptoms, will usually show an increase in the plasma chlorides, without an increase in the non-protein nitrogen elements. It is to be remembered, however, that passive congestion of the kidneys from cardiac lesions, etc., may also give high plasma values for chlorides.

6. Urea is one of the best indicators of the efficacy of dietary treatment, since it is almost wholly of exogenous origin.

Grand and Caroline.

REFERENCES.

1. Myers, V. C. and Fine, M. S.: *Jour. Biol. Chem.*, 1919, XXXVII, 239.
2. Norgaard and Gram: *Jour. Biol. Chem.*, 1921, XLIX, 263.
3. Frideridia: *Jour. Biol. Chem.*, 1920, XLII, 245.
4. McLean, F. C.: *Jour. Exp. Med.*, 1915, XXII, 212.
5. Rowntree, L. G., Fitz R. and Geraghty, J. T.: *Arch. Int. Med.*, 1913, XI, 121.
6. Myers, V. C., Fine, M. S., and Lough: *Arch. Int. Med.*, 1916, XVII, 570.
7. Baumann, Hansmann, Davis and Stevens: *Arch. Int. Med.*, 1919, XXIV, 70.
8. Upham, R., and Highley, H. A.: *Arch. Int. Med.*, 1919, XXIV, 557.
9. Gettler, A. O., Lindeman, E.: *Arch. Int. Med.*, 1920, XXVI, 453.
10. Highley, H. A., and Upham, R.: *Arch. Int. Med.*, 1920, XXVI, 367.
11. Austin, J. H., Stillman, E., and Van Slyke, D. D.: *Proc. of the Soc. for Exp. Med. and Biol.*, 1919, XVII, 59.
12. Tileston and Comfort: *Arch. Int. Med.*, 1914, XIV, 620.
13. Mosenthal, H.: *Arch. Int. Med.*, 1915, XVI, 733.
14. Host, H. F.: *Jour. Lab. and Clin. Med.*, 1920, V, 713.
15. Myers, V. C., and Killian: *Am. Jour. Med. Sc.*, 1919, CLVII, 674.

SCOPE AND PURPOSE OF THE INTERNATIONAL HEALTH BOARD*

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If asked what is the greatest single benefit that can be conferred upon man by his fellows, one might answer: "Education; help him to throw off the shackles of ignorance and so gain his freedom." Another might say: "Rid him of the crippling burden of disease that he may attain his highest development." As a matter of fact, these two are inseparable

and must inevitably go hand in hand. For many years thousands of school children throughout the vast rural districts of the South were stunted both physically and mentally by an infection the extent and severity of which was not then generally realized.

On October 26, 1909, the Rockefeller Sanitary Commission was formed for the purpose of promoting the eradication of hookworm disease from the Southern United States. This was to be accomplished by a series of educational demonstrations in the control of the disease with a view to convincing local governmental authorities of the reality and dangers of the infection, and the feasibility of its relief and ultimate control.

From 1910 to 1914, inclusive, a campaign was conducted by eleven states during which more than two million people were found to be infected with the disease which involved vast suffering, partial arrest of both physical and mental growth, great loss of life, and noticeable decrease in economic efficiency. Moreover it became evident from these demonstrations that the diagnosis of the disease could be made with ease and certainty, and that it could be readily cured and easily prevented; that the people, physicians, state boards of health, county and municipal officers were eager to co-operate in all helpful ways; and that, following the treatment and cure of this disease, an intelligent public interest was awakened in hygiene and in practical measures for permanent public sanitation. Furthermore, diligent and extensive inquiry has shown hookworm disease to be prevalent in a belt of territory encircling the earth for 30 degrees on each side of the equator, inhabited by more than a thousand million people and, in some regions, involving an infection rate of nearly 90 per cent. of the entire population, depleting to a corresponding degree the economic, social, intellectual, and moral resources of nations.

On June 27, 1913, the International Health Board was established as an integral part of the Rockefeller Foundation, and had for its object the advancement of public health through medical research and education, including the demonstration of known methods of treating and preventing disease. It became the immediate purpose of this board to continue the work begun by the Rockefeller Sanitary Commission in the Southern United States, and to extend to other countries and peoples, as opportunity offered, the work of eradicating hookworm disease and, so far as practicable, to follow up the treatment and cure of this disease by encouraging and aiding in the establishment of agencies for the promotion of public sanitation and the spread of the knowledge of scientific medicine.

*Read at the second annual Missouri Health Officers' Conference, Columbia, June 20, 1921.

From its beginning the Board has adopted certain characteristic policies, which have rendered possible its extensive and varied activities. The first of these policies is that of working through governmental agencies, national, state, and local, and through them obtaining the co-operation of the medical profession, the public schools, the press and other social agencies—in other words, through those agencies which the people regard as their own and on which the ultimate responsibility must inevitably rest. The second is that of relying upon popular education and on stimulating the interest of the people, rather than upon official exhortation or legislation, to enforce the therapeutic and hygienic and sanitary measures essential to the public health. The third is that of demonstrating in a limited area in each country the feasibility of bringing the disease in question under complete control, by the intensive co-operation of all the agencies concerned. By showing that it is possible to clean up a limited area, an object lesson is given, the benefit of which is capable of indefinite extension. The fourth policy is that of laying constant emphasis on the necessity of keeping the cost of the work down to a point so low that the feasibility of maintenance out of available public and private resources will become ultimately, even if not at first, apparent. A philanthropic agency amply endowed might go into a community and, by lavish expenditure, benefit a certain number of individuals, but if such benefit were conferred at a cost beyond the reach of similar communities throughout the country, the results would be of slight value as compared with those achieved by a policy of intelligent economy. The resources of the largest private endowments are insignificant in amount as compared with the aggregate cost of the community's physical and social betterment. The highest service that private endowments can render is, therefore, to furnish by discovery, initiative and experiment, a demonstration the effect of which may be to determine, to a very large extent, the direction in which the infinitely greater resources of the community may be intelligently applied.

The work expanded rapidly. Each succeeding year was marked by a steadily widening range of operations. Governments in all parts of the world invited the Board to enter with them into crusades for better health. In response to these requests, hookworm demonstration campaigns were organized in Central and South America, in Europe, Asia, and Australia, and in the West Indian and South Sea Islands. Meanwhile the work in the United States was continued and expanded.

Hookworm control demonstrations were followed by a desire on the part of the people for

better public health administration. As further experience was gained with measures for its control, the evidence became more and more convincing that these measures afford one of the best single means of creating a widely understood concept of what modern health measures may accomplish. Incidentally, these demonstrations contributed to the organization and development of permanent agencies for the improvement of general health conditions. Peoples and governments everywhere seemed actuated by the desire to increase their health activities. The people at large were realizing more and more that the health of their community is their responsibility, and that all work for bettering health conditions is their task—theirs to support, theirs to administer, and theirs to profit by.

The evolution of simple hookworm posts into effective agencies for conserving public health has been one of the gratifying developments in the Southern States. A county health service with a whole-time officer at its head is a goal that has been won for many communities. At the close of 1920, ninety-seven counties in twelve Southern States had full-time health departments in the charge of adequate personnel. These agencies seek to do for the rural people what the modern, well-equipped health department does for the population of the larger towns and cities. The importance of the work will be appreciated when it is remembered that 54 per cent. of the total population of the United States is rural, and that in twenty-five of the states the rural population comprises more than three-fifths of the total population.

At the present stage the plan of work pursued by county health departments aims at: (1) An education for every citizen in the fundamentals of health preservation; (2) an accurate health survey of the county as a whole; (3) a health map locating every home, with symbols to show the diseases that have occurred at each home during the past five years; (4) the medical inspection of every school child, with treatment for those who require it; (5) examination for hookworm disease and treatment of the infected; (6) a fly-proof latrine at every home, to prevent soil pollution and its attendant diseases, such as hookworm disease, typhoid fever, diarrhea, and dysentery; (7) maternity and infant welfare work; (8) free typhoid and smallpox vaccination, and (9) the establishment of a permanent health department adequate to cope with such general or special problems as may be encountered.

One of the most valuable features of the work is the county health survey. This gives the state and county health departments a rec-

ord of all infections within the county and a clinical history of each individual. The survey includes particulars as to hookworm, malaria, typhoid fever, tuberculosis, and other communicable diseases. In each state the co-ordination of the separate county health departments is effected through a central bureau of county health work, located at the headquarters of the state board of health and an integral part of that body. To stimulate the county health plan, especially during its formative period, the Board has co-operated with a number of states in the development of their programs.

Interest in public health matters has been greatly stimulated; the people are voting taxes for health purposes as never before, and a sanitary sense is beginning to manifest itself. The increase in county health work appropriations of legislatures to state boards of health of ten states from \$250,395 in 1910 to \$1,591,292 in 1920 bears mute witness to the genuineness of this interest.

The Kentucky legislature has created a special fund for continuing state aid to counties or districts which establish or maintain departments of health, and has authorized the state auditor to draw a warrant in favor of the state board of health for \$2,500 annually for each county which has established a health department.

With the rapid increase in the amounts set aside for health work has arisen a need for some measure of the value of the results obtained by expenditures for this work. It is not the amount which a state expends in health activities that is of importance, but the kind of trade which it makes—what it obtains for the expenditure. As a means of arriving at an approximate evaluation of the public health operations under way in one state, the state health officer drafted a plan of scoring in terms of financial return to the people the various health measures in operation throughout the state. This scoring method assigns to each health activity a relative money value. For example, each sanitary latrine is scored as having a value of \$2.00 and each life extension examination as having a value of \$5.00. The total score for all the health activities of the state during one year showed an estimated return to the people of \$1,791,210.00 as a result of the expenditure by the State Board of Health of less than one-fourth that amount.

The most direct expression of the effectiveness of county health work is to be found in the lowering of sickness and death rates. In North Carolina the number of cases of typhoid fever was reduced from 726 in 1917 to 427 in 1919. This represents a decrease in the death rate from typhoid from 29.6 to 16.9

per 100,000. For each death from typhoid fever it is estimated that there are on the average ten cases, and each case is estimated to cause a loss to the state of not less than \$400. In Monroe County, Mississippi, where 8,465 persons were inoculated for typhoid fever between 1918 and 1920 and a total of 1,776 sanitary privies were installed during the same period, the typhoid cases in 1920 numbered 89.8 per cent. less than in 1917.

The plan of work in operation in the Southern States is applicable not alone to that region. It is, in fact, already being adopted by states in other sections. There were in the country on December 31, 1920, not less than 126 rural counties or districts having whole-time county health departments each with a whole-time health officer. Kansas and New Mexico are among the latest states to establish such departments.

In the fight against hookworm disease the field staffs having the financial co-operation of the International Health Board have come frequently in contact with malaria. This malady strongly resembles hookworm disease in its wide distribution and in the fact that it is an anemia-producing disease which preys upon the race very heavily during the period of physical and mental growth. Because of its wide geographical distribution, its extreme prevalence over vast tropical and sub-tropical regions, where in places it is responsible for more sickness and death than all other diseases combined, and because of its obvious effects in the form of direct financial loss, impaired economic efficiency, and retarded physical and mental development, malaria may perhaps be regarded as presenting one of the most serious medical and sanitary problems with which we have to contend.

The scientific basis for malaria control is firmly established. The infection is communicated only by the *Anopheles* mosquito which has its habitat mainly in rural areas, and which can be readily recognized by its habit of standing on its head when at rest. Quinine has long been successfully employed to destroy malaria parasites in the blood of infected persons. The practical measures for combating the disease, then, are clearly indicated: (1) to eliminate *Anopheles* by preventing their breeding, (2) to screen the houses against this mosquito, (3) to sterilize by quinine the blood of human malaria carriers. In a given demonstration one or all of these methods may be used according to local conditions. Since 1916 various methods in malaria control have been separately tested under field conditions, the International Health Board co-operating with the local and state authorities and with the United States Public Health Service. Certain of these experimental cam-

paigns have been attended with a large measure of success. They have shown that by simple, anti-mosquito measures malaria can be controlled in the average small town of the Southern States at a cost well within the means of the community; that malaria control is not only economically feasible but it is in fact a sound investment. Control projects conducted over a period of four years in six Arkansas towns afforded convincing proof that it costs a community approximately a four-fold greater sum to harbor malaria than to banish it. As a consequence of these demonstrations public funds for malaria control operations are now being appropriated as fast as sanitarians can be found to do the work. A significant feature of recent anti-malaria work in Hinds County, Mississippi, was the use of top minnows to consume the eggs and larvae of the *Anopheles*. These small fish, seeming to prefer mosquito eggs and larvae to other forms of food, patrolled the edges of ponds and other water deposits and successfully controlled mosquito production throughout the season. This proved a cheap and effective measure, especially in the case of stock ponds which were used for watering cattle and horses, and which could not be drained, or covered with a film of oil. In June, 1919, representatives of the United States Public Health Service, of the state departments of health, and of the International Health Board adopted a co-operative anti-malaria program in ten Southern States, and by the end of 1920 operations were in progress in fifty-two different towns and communities in these states. The object was two-fold: first, to test the measures of control by applying them under a wide range of varying conditions; and, second, to educate a larger public with the hope of arousing sufficient sentiment to support a comprehensive effort to eliminate the scourge of malaria from the whole South.

Although the control of hookworm disease or of malaria is in itself an end highly desirable and important, the Board has, from the outset, regarded these campaigns chiefly as a means of educating communities in the possibilities of public health work. The aim is not permanently to participate in functions of the public health agencies, but to convince established agencies that certain policies and procedures are both effective and feasible, and to aid them to extend and strengthen carefully prepared programs of development. The control and prevention of hookworm, malaria and yellow fever, a campaign against tuberculosis in France, the improvement of local and national health administration, the professional training of public health officials, studies of various problems in preventive medicine, aid to medical schools at home and abroad, uni-

versity fellowships in public health and modern medicine for students from many lands—these are the leading features of the present program of the organization and are in keeping with its established aim, that of fostering the development of permanent public health agencies and promoting the spread of the knowledge of scientific medicine throughout the world.

GASTRIC ULCER

Review of the Literature Since 1903

THOS. G. HALL, A.B.

ST. LOUIS

Gastric ulcer was first described by Creiveilhier in 1829. Oftentimes the disease goes under his name and Creiveilhier's sign is sometimes heard when speaking of the points of tenderness present below the xiphoid and behind in cases of ulcer. Despite this description the condition passed undiagnosed for years after such synonyms as gastric catarrh, dyspepsia and a host of other equally invalid terms covered the ignorance of a former generation.

Ewald thinks that the ulcers are produced by the digestion of dead tissue occurring in the stomach wall as a result of anomalies of circulation. By others, occupation comes in for a share of the blame. Cobblers and tailors were supposed to develop the condition as a result of the position assumed while at their tasks. As late as 1910 F. J. Smith, writing in the *British Medical Journal* of that year describes the affection as a diathesis. Rosenow's work in the production of experimental ulcer in laboratory animals by the injection of cultures of streptococci appears to give a valid reason for an infection process as the basis of ulcer occurrence. Graham working in the Mayo Clinic states that in 25 per cent. of duodenal ulcer and in 20 per cent. of gastric ulcer there was a coexistent appendiceal condition. Bolton in England produced gastric ulcer by the injection of certain toxic substances. His method was to inject animals with macerated tissue of another animal and then on reinjection of the serum of the injected animal to produce ulcers in a normal animal of the same species. Evidently the injected material produced in the injected animal definite toxic bodies which when again injected in the healthy animals produced the result described. In the last ten years the all important subject of focal infection has become an etiological factor in the production of ulcer, and oral sepsis is pre-eminent in this regard.

The Mayo brothers in this country to whom we owe much in regard to our modern un-

derstanding of both gastric and duodenal ulcer have divided ulcers into three main types: (1) Simple mucous erosions; (2) ulcers which perforate the submucous coat, but do not involve the muscularis; (3) ulcers which perforate all coats of the stomach or duodenum.

Formerly it was taught that ulcers of whatever kind were much more a prominent symptom complex in females than males, and from a perusal of hospital reports it would seem that this was the case. We now know that males are more often subject to this disease process than females; also that the duodenal type is the more frequent.

As regards the position of the ulcer in the stomach we have Wm. Mayo's word for it that over 75 per cent. are present in the grinding or pyloric end. A point which we are often liable to forget is that the first part of the duodenum is developmentally derived from the foregut in common with the posterior wall of the pharynx, all of the esophagus and stomach, so that in our treatment, we must remember that this portion of the duodenum is a part of the stomach and not small intestine, and that small intestine differences do not apply here.

Hurst of England in an illuminating article on the subject published in 1920, is of the belief that certain forms of stomachs are more prone to develop ulcers either of the gastric or duodenal type. The hypertonic stomach is the one which exhibits the duodenal ulcer, whereas the hypotonic stomach harbors the gastric form. One is likely to agree with him that there is in many respects a good deal of truth in what he says for the rapidly acting hypertonic stomach empties rapidly, hence the irritating and not eroding HCL of the gastric juice, as Bolton would have it, comes immediately in contact with the duodenum and in the hypotonic condition which resembles a stasis, allows the juice to act on the gastric lining much more perfectly.

Back in 1904 C. P. Howard, then resident physician at the Johns Hopkins Hospital, made an elaborate study of the prevalence of gastric ulcer in the United States. He reviewed data from the hospitals of Baltimore, Boston, New York, Cleveland, Chicago and San Francisco. From the statistics at hand he was able to conclude that ulcer was more prevalent in the North, less so in the South, with the exception of San Francisco, and rather uncommon in the Middle West. He also compared our conditions with those existing on the continent and the balance was somewhat in our favor. Sohler states that the condition is rare in Russia and in the Bavarian Alps. The people of these parts are for the most part confined to a vegetarian diet and on the whole live a rather tame life, for I am convinced

that the high tension existence which is our lot today plays a not unimportant role in many present diseased conditions.

J. Boas, pioneer worker in matters of the stomach in an article appearing in the *Deutsche Med. Wchnschr.* about 1904, emphasizes the importance of occult blood findings in the stool when a diagnosis of ulcer is to be obtained. However, he conservatively states that this alone should not guide us, but only in connection with the rest of our findings, history, etc., and that a negative stool should not preclude us to a dismissal of a gastric ulcer diagnosis. L. Fishbein in 1917 is rather positive in insisting on occult blood findings as the best diagnostic criteria.

In the beginning of this century the cardinal points in diagnosing ulcers were the occurrence of pain, appearing several hours after eating, hyperacidity and hematemesis. All or any one of these symptoms may be present and ulcer exist. Faulhaber quoting Boas in the *Münchener Med. Wchnschr.* of 1913, says that the site of the ulcer is not to be diagnosed without difficulty. In general the pain is greatest over the site of the ulcer; thus in duodenal ulcer the pain is felt most severely on the right of the mid-line and over the pyloric region.

Of late years the roentgen rays have solved to a great extent our problems in the diagnosis of this condition. Wm. Mayo is of the opinion that the X-ray will give positive findings in 90 per cent. of the cases. Cole's method of fractional examination of the stomach contents with the Rehfuess tube seems to be another excellent way of arriving at a diagnosis.

The Mayos in 1907 stated that gastric or duodenal ulcer was not a surgical condition per se, but that only the complications, perforations, adhesions, etc., came to the lot of the surgeon. Today this is still their opinion and the brilliant Moynihan of England also adheres to this decision. In cases where the medical treatment of ulcer could not be carried out for economic reasons, Wm. Mayo recommends surgical interference as in also those cases which have been cured medically at least nine times. This remark appears a bit facetious, but I do not think the gentleman was jesting, and probably at times we do have the laugh on our medical colleagues, but not through any fault of their own.

Though not in the surgical sphere the medical treatment resolves itself into a dietary one, the several forms of Luebe, Lenhartz and Sippy, which you are no doubt familiar with. There is today some differences of opinion as to surgical treatment, some preferring closure without gastroenterostomy, others always gastroenterostomy. At times gastroen-

terostomy is not without its drawbacks. Burton-Opitz says that occasionally our gastroenterostomy may perfect a vicious circle and as a physiologist he would only recommend the operation where the pyloric opening was almost completely sealed.

Mayos use cautery or knife excision at times but state that this method is of limited usefulness. They are of the opinion that in the majority of cases posterior gastroenterostomy is to be preferred.

There are many little points in the literature which are of value but in a paper of this kind cannot be brought in in detail. I hope, though, that I have succeeded in giving you a bird's-eye view of the literature and the important points which have led to our modern understanding of the condition.

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REFERENCES

- Chicago Clin. Review, 1903. (A. F. Stewart.) Gastric Ulcer, Its Diagnosis and Indications for Surgical Aid.
J. A. M. A., 1903. (A. H. Cordier.) Gastric Ulcer—Clinical, Pathological and Surgical Phases.
 Cleveland Med. Journ., 1903. (H. Luck.) Ulcus Ventriculi.
 Deutsche med. Wehnschr., 1903. (J. Boas.) Ueber die Diagnose des Ulcus Ventriculi mittelst Nachweises occulti Blutanwesenheit in den Faeces. V. 29, p. 865.
 Cleveland Med. Journ., 1904. (Wm. J. Mayo.) Chronic Ulcer of Stomach from Surgical Standpoint.
 Medical News, 1904. (C. P. Howard.) Incidence of Gastric Ulcer in America.
 Medical News, 1904. (T. B. Fletcher.) Blood and Urine in Gastric Ulcer.
 Medical News, 1904. (Max Einhorn.) Symptomatology in Gastric Ulcer.
 New York Med. Journ., 1905. (C. E. Nammack.) Diagnosis, Treatment, etc.
 Boston M. & S. Journ., 1905. (E. M. Buckingham.) Gastric Ulcer.
 Ann. Surg., 1907. (Wm. Mayo.) Contributions of Surgery to a Better Understanding of Gastric Ulcer.
J. A. M. A., 1908. (C. Graham.) Prominent Symptoms in the Diagnosis of Gastric Ulcer.
 Am. Journ. Clin. Med., 1909. (R. Tissot.) Ulcer of stomach.
 Brit. Med. Journ., 1910. (F. J. Smith.) Gastric Ulcer.
 Boston M. & S. Journ., 1911. (Wm. Mayo.) Some Aspects of Ulcer.
 Brit. Med. Journ., 1912. (Sir B. Dawson.) Gastric Ulcer.
 Muenchen. med. Wehnschr., 1913. (Faulhaber.) Zur Diagnose und Behandlung des chronischen Ulcus pylori. V. 60, p. 915.
 Brit. Med. Journ., 1914. (C. Bolton.) Recent Observations, etc.
 Trans. Coll. of Phys., Phila., 1915. (J. Deaver.) Gastric ulcer.
 Boston M. & S. Journ., 1917. (L. Fishbein.) Remarks on Diagnosis.
 Surg., Gynec., Obst., 1918. (J. Deaver.) Peptic Ulcer.
 S. Clinics, Chicago, 1919. (A. D. Bevan.) Ulcer of Stomach.
 Ann. Surg., 1920. (Wm. Mayo.) Surgical Aspects, etc.
 Brit. Med. Journ., 1920. (A. Hurst.) Review of Gastric Ulcer.
 Med. Rec., 1921. (Moynihan.) Impromptu Remarks on Gastric and Duodenal Ulcer.

NEW METHOD FOR DETERMINATION OF CALCIUM AND THROMBIN IN SERUM.—Fred West, assisted by John Bauer and Kathryn Barnickol, Baltimore (*Journal A. M. A.*, April 8, 1922), describes a method of determination of available calcium in fresh serum, and at the same time to express in terms of calcium the amount of thrombin present. The calcium determination is accurate, simple and rapid, involving no calculations and using only the plasma centrifuged from the citrated blood taken from the Wassermann work, and calcium controls. Thrombin, of course, depends on two factors, available calcium and prothrombin. If, then, a thrombin

result is low when the calcium is normal, it follows that prothrombin is deficient. If both are normal and still the coagulation time is slow and the clot weak, fibrinogen must have been deficient. The method is described in detail.

NEGLECTED FEATURE OF MECHANICS OF MITRAL STENOSIS.—Observations made by Yandell Henderson, New Haven, Conn. (*Journal A. M. A.*, April 8, 1922), by in vitro experimentation on the heart of a patient with mitral stenosis disclosed that the back lash of the baggy funnel formed of the fused flaps amounted to 80 c.c. This lost motion was probably an important factor in diminishing the mechanical efficiency of this heart. Its effect, combined with the comparatively small amount of blood that could pass through the stenosed arteries during diastole, is calculated to have been such that, in order to discharge (say) 26 c.c. of blood into the aorta, the left ventricle would have to make a stroke of an amplitude greater than 100 c.c. A possible relation of this back lash of the abnormally shaped valve to the (so-called) presystolic thrill is suggested.

A CASE OF CHRONIC ACETANILIDISM.—J. W. Shuman, Sioux City, Iowa (*Journal A. M. A.*, Aug. 13, 1921), cites the case of a nurse, aged 28, who complained of severe pain of two days' duration in the right mastoid region, requiring morphin for relief. She was deeply cyanotic. Her previous history was unimportant except for numerous operations since entering training six years previously. She denied taking any drug which might cause the color (cyanosis). Surgical consultation ruled out any middle ear disease. The urine contained many red blood cells; in fact, the color was chocolate brown. Following the statement of the ear surgeon that "the right ear was normal," the patient developed what appeared to be renal crisis (left), requiring morphin. It was noted, however, that she did not sweat during these attacks. Her temperature (axillary) ranged from 99.5 to 101.5 F. This, it was discovered, was due to an electric heating pad which was her constant companion, and she said that she chilled so that she could not trust a thermometer between her teeth. Later her temperature became normal, after the oral method was definitely instituted. The patient had now been under hospital care for more than two weeks. At about this time it was discovered that she had entered the hospital with 350 5-grain acetanilid tablets, and she admitted that she had been using acetanilid for more than three years. She thoroughly deceived the staff of physicians (six) who had attended her for a period of more than two weeks. She presented symptoms which were baffling: (1) pain—a subjective symptom which cannot be measured; (2) hyperprexia (false); (3) hematuria (not constant, the source not determined, possibly menstrual). She was a malingerer and a drug addict.

KOTTMANN REACTION FOR THYROID ACTIVITY.—In a study made by William F. Petersen, F. T. H'Doubler, S. A. Levinson and J. F. Laibe, Chicago (*Journal A. M. A.*, April 8, 1922) of 400 serums obtained from patients with thyroid dysfunction, as well as those ill with other diseases, and a large group of normal persons, the photochemical serum reaction devised by Kottmann yielded a close index of the thyroid activity. The test is simple and should be of material aid in the clinical as well as the experimental investigation of thyroid problems.

THE JOURNAL

OF THE

Missouri State Medical Association

JUNE, 1922.

EDITORIALS

ST. LOUIS SESSION OF A. M. A.

Unanimous in their praise of the excellence of the entertainment of the 73rd annual meeting of the American Medical Association at St. Louis last month, the 5,174 Fellows who registered their presence returned to their homes completely satisfied that St. Louis had fully earned the appellation of "the friendly city." The Local Committee of Arrangements under the chairmanship of Dr. Robert E. Schlueter apparently fore-visualized every possible contingency so that from the opening session of the House of Delegates on Monday to the grand finale—the performance in the municipal theater on Friday night—no vexatious delays marred the progress of the numerous events prepared for the instruction and entertainment of the visitors.

The meeting will be long remembered as the "most successful of any thus far held," to quote from an editorial in the *Journal of the American Medical Association* of June 3. The members of the Local Committee of Arrangements may feel proud of their work for they have earned for themselves and for the St. Louis Medical Society a meed of praise seldom given so whole-heartedly as has been extended to them.

As usual the work of the House of Delegates was voluminous and many important problems were discussed. The Association took cognizance of several questions that have been troubling the individual practitioner for some time and measures looking to his relief were proposed. In doing this great emphasis was laid upon the importance of the county medical society as a working unit of the organization. For instance, firm opposition was declared against "state medicine" as harmful to the public weal and in defining "state medicine" the following was adopted:

The American Medical Association hereby declares its opposition to all forms of "state medicine," because of the ultimate harm that would come thereby to the public weal through such form of medical practice. "State medicine" is hereby defined for the purpose of this resolution to be any form of medical treatment provided, conducted, controlled or subsidized by the federal or any state government or municipality, excepting such service as is provided by the Army, Navy or Public Health Service and that which is necessary for the control of communicable diseases, the treatment of mental disease, the treatment of the indigent sick, and such other services as may be approved by and

administered under the direction of or by a local county medical society, and are not disapproved by the state medical society of which it is a component part.

Another resolution, offered by Dr. Victor C. Vaughan, emphasized the need of periodic examinations of supposedly healthy persons and asked the American Medical Association to prepare and publish forms for such examinations, "and that the county medical societies be encouraged to make public declaration that their members are prepared and ready to conduct such examinations, it being understood that the indigent only shall be examined free of charge and that all others are expected to pay for such examinations."

Dr. Robert E. Schlueter, of St. Louis, introduced a resolution adopted by the St. Louis Medical Society protesting against ex-service men being sent to Chiropractic schools by the federal vocational training board. The resolution reads:

WHEREAS, The St. Louis Medical Society on May 16, 1922, by memorial and resolutions vigorously protested against the approval by the U. S. Government of the School of Chiropractic as a means of vocational training for disabled ex-service men, and

WHEREAS, It appears that more than 250 ex-service men from all parts of the country, seventy of whom represented the Ninth District, composing the states of Missouri, Iowa, Kansas and Nebraska, are now enrolled in one Chiropractic School in this District, with the sanction and approval of the U. S. Government; therefore, be it

Resolved, That the House of Delegates of the American Medical Association, in annual session assembled, representing over 89,000 legally qualified physicians, adequately trained in the arts and sciences (the only foundation for the recognition, control and prevention of disease), approves the sentiment expressed in the memorial and resolutions adopted by the St. Louis Medical Society, which have been submitted to this House and hereby directs that the proper officers of the American Medical Association memorialize and petition the Federal government, particularly those officers charged with the responsibility for the rehabilitation of disabled ex-service men, and to take such action in the interest of the welfare of all the people, and also for the protection of those who honestly desire to administer to the sick, to the end that the ex-soldiers seeking vocational training which will fit them for ministering to the sick and aiding in the recognition, control and prevention of disease, shall, at least, meet the requirements and shall receive such adequate training as is defined in the classification of medical schools of the American Medical Association known as Class A, or acceptable medical schools—a standard which is approved by all right-thinking people moved by a desire for public welfare.

This resolution was favorably reported by the reference committee and unanimously adopted by the House.

The public health activities of the American Red Cross have aroused the ire of the Board of Trustees who reported that demands had been made upon the officers of the Red Cross to cease its public health activities for the reason that such work is foreign to the purpose of the organization and will lead to irritating and disagreeable conflict with reputable medical practitioners. The House of Delegates, therefore, decided to take appropriate action to convince those in authority that the public health activities of the Red Cross are no longer necessary and if continued are likely to promote community irresponsibility and helplessness in regard to its own welfare.

The cults are to be investigated by a com-

mission of scientists and reliable data and information collected and disseminated concerning the methods of the various systems of drugless therapy, a movement advocated by the Congress of Medical Education at Chicago last March and favorably commented on in this JOURNAL last April. The commission will consist of representatives of the Association of American Universities, National Educational Association, the Carnegie Foundation for the Advancement of Teaching, Federation of State Medical Boards, and the American Medical Association.

Pay clinics, group practice and diagnostic clinics are to be investigated and the profession informed of the practices followed in these groups. Much comment, some favorable and a good deal condemnatory, on group practice and pay clinics has been going on for some time.

A very important movement was inaugurated when the House of Delegates authorized the Board of Trustees to establish a legislative bureau with broad functions in all matters pertaining to the practice of medicine and the protection of the public health, with specific duties as follows: (a) co-ordinate the activities of the several constituent state associations, (b) ascertain and crystallize the opinions of the medical profession and the said constituent state associations, and (c) represent the American Medical Association.

In connection with the legislative bureau the House approved a plan suggested by the Board of Trustees to establish legal defense indemnity in malpractice suits. The Board of Trustees will submit a proposition to the House of Delegates at the 1923 session for putting into operation the plans suggested.

This is a movement that has been too long delayed. There should be a regular legal department at the headquarters in Chicago, in conjunction with the legislative bureau perhaps, for aiding and guiding the defense committees of the several state associations. The legislative bureau can render invaluable service to the state associations on legislative questions not only during the sessions of the legislatures, but on all matters of a legal nature affecting the work of the county and state organizations in public health legislation.

The Sheppard-Towner law was condemned in the following resolution:

WHEREAS, The Sheppard-Towner law is a product of political expediency and is not in the interest of the public welfare, and

WHEREAS, The Sheppard-Towner law is an imported socialistic scheme unsuited to our form of government, and

WHEREAS, The Sheppard-Towner law unjustly and inequitably taxes the people of some of the states for the benefit of the people of other states for purposes which are lawful charges only upon the people of the said other states, and

WHEREAS, The Sheppard-Towner law does not become operative in the various states until the states themselves have passed enabling legislation, therefore be it

Resolved, That the American Medical Association disapprove the Sheppard-Towner law as a type of undesirable legislation which should be discouraged.

Another resolution introduced by the Missouri delegation and adopted by the House called on the American Medical Association to assist in the passage of the Watson-Dyer-Newton bill in Congress providing for an increase of medical officers of the United States Public Health Service. The resolution reads:

WHEREAS, The United States Public Health Service activities have been materially increased by various Acts of Congress, owing to the care and treatment of the thousands of ex-service men and women of the World War, and by the increased requirements in rural sanitation, and by the increased requirements in research laboratory work, and by the increased requirements necessary for efficient immigration inspection; therefore, be it

Resolved, That the House of Delegates of the American Medical Association, in annual session assembled, endorse and hereby direct that the proper officers of the American Medical Association take in hand immediately, memorialize, and petition the federal government, particularly the Finance Committee of the Senate, the Interstate and Foreign Commerce Committee of the House, the President, the Secretary of the Treasury, the director of the Veterans' Bureau, and others who can be instrumental, to secure the enactment of Senate Bill No. 2764, introduced by Mr. Watson of Indiana, House Bill No. 9291 introduced by Mr. Dyer of Missouri, and House Bill No. 9775 introduced by Mr. Newton of Minnesota (known as the Watson-Dyer-Newton enactment); all to reorganize and promote the efficiency of the United States Public Health Service, in that they provide for an increase of personnel of that Service by 550 regular commissions; fifty of these to be dental officers, fifty sanitary engineers, and 450 medical officers, to be chosen from men who hold reserve commissions in the U. S. Public Health Service and who have had not less than three years' service in the Army, Navy or Public Health Service, a part of which time must have been served between April 6, 1917, and November 11, 1918. These bills are personnel bills, and do not in any way change the duties of the United States Public Health Service, and do not require any increased appropriation, but simply supply that corps with the needed medical, dental and scientific personnel.

Several resolutions were introduced calling upon the Association to seek a modification of the Volstead law and the following was adopted:

Resolved, That the House of Delegates of the American Medical Association, in convention assembled, representing a membership of over 89,000 physicians, appeals to the Secretary of the Treasury and to the Congress of the United States for relief from the present unsatisfactory conditions, and recommends that provisions be made for supplying bonded whisky, for medicinal use only, at a fixed retail price to be established by the government.

All in all, the meeting was an unusually lively one. The delegates seemed to have on "their fighting clothes" and in a mood to resist further encroachments upon the rights and privileges of the licensed practitioner of medicine by legislative action of federal or state governments. There was much discussion of the over-development of specialists and plans for curtailing the tendency of the "raw recruit" in medicine to aeroplane himself from a hospital internship to a seasoned specialist, were proposed. The opinion prevailed that one who sets himself up as a specialist should first spend a few years in general practice, and medical examining boards were urged to demand thorough training in post-graduate courses before physicians be permitted to pose as specialists.

The election of officers resulted as follows:

Dr. Ray Lyman Wilbur, of Stanford University, president-elect; Dr. Willard Bartlett, of St. Louis, vice president; Dr. A. R. Craig, re-elected secretary; Dr. Austin A. Hayden, of Chicago, treasurer, to succeed Dr. W. A. Pusey. In the re-election of Dr. F. C. Warnshuis, of Michigan, as speaker of the House of Delegates many expressions of appreciation were voiced for the splendid manner in which the speaker had executed the duties of his office. Dr. Rock Sleyster, of Wisconsin, was elected vice speaker. Several Missouri Fellows were elected officers of sections, namely: Dr. Malcolm A. Bliss, of St. Louis, vice chairman Section on Nervous and Mental Diseases; Dr. H. S. Crossen, St. Louis, vice chairman Section on Obstetrics and Gynecology; Dr. Archer O'Reilly, St. Louis, secretary Section on Orthopedic Surgery; Dr. Borden Veeder, St. Louis, chairman Section on Pediatrics; Dr. C. E. Burford, St. Louis, vice chairman Section on Urology.

The selection of the next place of meeting brought a contest between Washington, D. C., Atlantic City and San Francisco, the latter city winning the majority vote.

THE NEW ARMY OF THE UNITED STATES

For the first time in the history of the country a definite and comprehensive plan has been adopted for the peace time development of an Army of the United States.

General Pershing believes that the World War might have been averted if the present preparedness plan had been adopted some years earlier. In operation now it will make future war a remote possibility.

The Regular Army, the National Guard, and the organized reserves are being organized and trained to mobilize by organizations as one army in case of emergency. Every able-bodied citizen of the United States between the ages of 21 and 60 years is obligated to do his share toward this desirable end.

For purposes of organization and training the country has been divided into nine corps areas and active organization is now under way throughout the entire United States. The Seventh Corps Area includes the States of Missouri, Arkansas, Kansas, Iowa, Nebraska, Minnesota, North Dakota, South Dakota, with headquarters at Fort Crook, Nebraska.

The States of Missouri and Arkansas have been allotted to the 102 Division, U. S. Army, with headquarters at 408 Old Custom House, 3d and Olive Streets, St. Louis, where application blanks for appointment or any information desired may be had upon request.

To the individual eligible for military service, preparedness offers innumerable advantages over our former hit-or-miss plan of mobilizing an army in the face of an emergency. The organization and training of an army in time of peace will be accomplished in an orderly and systematic manner with every man so selected and assigned that each one will be doing the work he prefers and for which he is best qualified.

Training and instruction will take one from home and daily occupation for a maximum period of fifteen days each year and anyone may be excused from a fifteen-day training period in case of necessity. The reserve officers and enlisted men receive the pay and allowances of officers, and men of like grade of the Regular Army during the fifteen-day active training period.

In addition to this training period there will be required some supplementary instruction. This is being accomplished by Regular Army officers detailed for the purpose, by correspondence courses and by study engaged in by each officer himself. The end to be gained is only to instruct each individual in time of peace so that he will be fitted for the performance of his duties in case of emergency.

All physicians in good standing will be commissioned in the Medical Officers Reserve Corps, and in case of war requiring mobilization of the army these officers will not only be on an equal footing with the medical officers of the Regular Army but no influence will be permitted to stand in the way of their enjoying all the privileges of rank and assignment that they are entitled to.

Elsewhere in this number there appears a more complete description of the organization of the Army.

COMMERCIAL VITAMIN PREPARATIONS

Much information has been collected bearing on the vitamin content of preserved, canned and dried foods which in their fresh state are known to contain an abundant supply of vitamins. This knowledge has come from investigations carried out in our universities and federal and state food laboratories, and also from studies made by those who are commercially interested in the production and sale of preserved foods, such as condensed milk, canned and dried vegetables and the like.

Pharmaceutical firms have spent much energy and money to convince the medical profession and the public that the administration of vitamin preparations is a wise or even necessary procedure, but they have presented little or no evidence to prove that their prod-

ucts really contain the rich supply of vitamins that the advertising writer assures us are present. Furthermore, our students of nutrition who are working with vitamins have not investigated these products, evidently considering an investigation of a useless preparation, such as these vitamin "concentrates," of little scientific value.

Since, however, the user of a worthless or inefficient medicament is entitled to know what he is using, and since a knowledge of the commercial vitamin concentrates is likely to stimulate dependence on the available food supply with its accompanying vitamin content, a study¹ of some commercial vitamin preparations, carried out by Julius H. Hess, Josiah J. Moore, and Joseph K. Calvin in the Departments of Pediatrics and Pathology at the University of Illinois College of Medicine, is of interest.

The water soluble, antiscorbutic vitamin C is known to be the least stable of the three definitely known vitamins; hence, the authors decided to determine its presence in some commercial preparations claimed to contain vitamin A, B and C, as a means of judging whether or not the claims made for these preparations were well founded. For their study of antiscorbutic potency they selected two widely advertised preparations, one being an ethical pharmaceutical specialty ("Metagen") offered to physicians, the other a "patent medicine" ("Mastin's Vitamon Tablets") exploited to the public. These preparations were both found to contain insufficient vitamin C to protect guinea-pigs from scurvy when administered in quantities recommended as protecting doses for infants or children. Having proved the lack of vitamin C, the Illinois investigators determined the vitamin B value of these preparations and also of another that is offered to the medical profession as a yeast vitamin—"Yeast Vitamin—Harris Tablets." For this study they determined the power of these products to protect pigeons from avian polyneuritis when fed a ration otherwise deficient in the antineuritic vitamin C. From these experiments it appeared that the process of manufacture and the subsequent aging of these products had not caused as much deterioration of the antineuritic as of the antiscorbutic properties. While all were shown to contain vitamin B they had, with the possible exception of the yeast vitamin concentrate, a much lower potency than fresh yeast.

From the investigation it is evident that the claims that one or all of the known vitamins can be prepared for dispensing in a concentrated form and be unaffected by drying, aging and oxidation, are open to grave ques-

tion. The investigation presents another potent reason why we should depend on the dairy, the grocery and the market, and not on the drug store, for our supply of vitamins.

NEW BUILDING FOR ST. LOUIS MEDICAL SOCIETY

For a number of years the members of the St. Louis Medical Society have realized that their present building is wholly inadequate to meet the demands of the society as a meeting place and safeguard the valuable library that has accumulated on its shelves, and the need of a new building has been discussed informally from time to time. Recently definite action was taken by the society in the appointment of a building committee which was authorized to inspect sites, engage an architect to draft plans and bring in a concrete proposition for the society's acceptance. The movement has aroused widespread enthusiasm among the members of the society which will undoubtedly result in the erection of a creditable edifice in the near future.

Although no definite plans have as yet been formulated it is contemplated that the building shall contain two auditoriums, a large hall to accommodate five or six hundred people and another hall for smaller audiences, committee rooms, a kitchen and dining room, offices for the clerical force and, most important of all, adequate accommodation for the library and its future needs. With such a building as a home the St. Louis Medical Society would inspire the highest degree of activity among its members and undoubtedly receive many bequests for an endowment fund to perpetuate its usefulness.

NEWS NOTES

DR. ROBERT D. HAIRE, of Clinton, departed for Europe on June 8, accompanied by his wife and daughter.

DR. GEORGE DOCK, Professor of Medicine at Washington University Medical School, has resigned.

DR. A. C. VICKREY, superintendent of State Hospital No. 2, St. Joseph, has resigned his position.

DR. E. LEE MYERS, of St. Louis, will spend the months of June, July and August in Southern California.

DRS. J. E. BAIRD, E. L. PARKER and J. E. MUSGRAVE, of Excelsior Springs, have been

1. Jour. A. M. A., May 13, 1922, p. 1441.

appointed members of the board of health of that city.

DR. R. L. SUTTON, of Kansas City, was the recipient of the honorary degree of doctor of laws at the eightieth annual commencement of the University of Missouri.

THE St. Louis Medical Society has taken action looking toward the erection of a new building and a committee has been appointed to investigate sites and submit recommendations to the Society.

A SPECIAL course in general surgery is offered to a limited number of physicians by Dr. Max Thorek at the American Hospital, Chicago, Illinois, through an announcement in the advertising pages of this issue of THE JOURNAL.

ONE of our members living in a town of five thousand in the southwest part of the state desires to sell his office equipment; price, \$500. Those interested can obtain the name and address from the Secretary, 3529 Pine Street, St. Louis, Mo.

PRESS dispatches state that Mr. Charles F. Prather, State Food and Drug Commissioner, was arrested for violating the state prohibition law. He and his brother were charged with operating a still. Mr. Prather was appointed Commissioner of Food and Drugs to succeed Dr. E. L. Barnhouse.

DR. M. WILEY, Aldrich, Mo., desires to dispose of a small stock of drugs and fixtures located at Wentworth, Newton County, where he formerly practiced. Wentworth is a town of about 350 on the Frisco Railroad, surrounded with good farming community. Address inquiries to Dr. M. Wiley, Aldrich, Missouri.

DR. W. B. MCCOY, Box 94, Gentryville, Mo., desires to dispose of his practice and invites correspondence from members who may be interested in such a proposition. Gentryville is located in the southern part of Gentry County in a good farming community, with a population of about 300. Address communications to Dr. McCoy.

THE St. Louis Medical Society has appointed a committee to make a survey of the city institutions for the care of the sick with a view of preparing an ordinance for increasing the salaries of physicians employed in such institutions. The Society has inaugu-

rated a custom of introducing new members at a regular meeting every month; twenty members were introduced at the meeting of June 6.

CONSTRUCTION on the new building for the St. Louis University School of Dentistry has been started and it is expected that the building will be completed and ready for the classes at the fall semester. The building is to be three stories high with a frontage of 100 feet on Caroline Street and a depth of 100 feet on Grand Avenue. There will be room for 137 dental chairs in the clinic on the first floor; the second floor being devoted to laboratories and class rooms. The extracting and examining rooms, rest rooms and offices will be located on the first floor.

A SPECIAL summer course of six weeks for the training of X-ray and laboratory technicians is announced by the Midwest Training School of Kansas City. The course is open to both men and women. The school had an interesting exhibit at the A. M. A. meeting in St. Louis that elicited most favorable comment, many physicians arranging to send their assistants and nurses for special training. The school has been in operation over a year, and is, as far as we know, the only school in America conducted by ethical physicians for the training of assistants and technicians.

THE board of managers of the state hospitals has confirmed the appointment of a consulting staff for hospital No. 2, St. Joseph, composed of the following: Dr. E. C. Renaud, Laryngology and Rhinology; Dr. M. J. Farber, Dermatology; Dr. Charles Greenberg, Genito-Urinary; Dr. Caryl Potter and Dr. H. K. Wallace, Surgeons; Dr. J. G. Morgan, Dental Surgeon; Dr. W. H. Minton, Ophthalmology; Dr. R. Disque, Otolaryngology; Dr. L. H. Fuson and Dr. C. A. Good, Internists; Dr. A. B. McGlothlan, X-Ray. The positions are honorary and the men will serve without pay.

FROM *Science* we learn that Dr. Warfield Theobald Longcope, Bard professor of medicine at Columbia University, and physician in chief at the Presbyterian Hospital, New York City, has been appointed professor of medicine at the Johns Hopkins University Medical Department, and physician in chief at the Johns Hopkins Hospital, beginning on July 1, when the one-year term of Dr. G. Canby Robinson will expire. Dr. Robinson went to the hospital with the understanding that at the end of one year he was to return to his post

as professor of medicine and dean of the Vanderbilt University Medical Department.

MEMORIAL services for the late Dr. Young H. Bond, who founded the Marion Sims College of Medicine in 1890, now the medical department of the St. Louis University, were held at the University on Thursday, May 25. Among the speakers were Rev. W. B. Rogers, former president of the University, Dr. Carl Barck, Dr. B. M. Hypes, Dr. Jacob Geiger and Dr. H. W. Loeb.

DR. EVARTS A. GRAHAM, Professor of Surgery at Washington University Medical School, St. Louis, has been appointed a member of a commission to investigate the dispensary system in England, and Dr. Joseph Erlanger, Professor of Physiology, has been appointed a member of the Medical Fellowship Board of the National Research Council to administer fellowships established by the Rockefeller Foundation and the General Education Board for the purpose of increasing the number of competent teachers in medicine.

THE Jersey Cream Coffee Company of St. Louis are offering a superior brand of coffee direct to the consumer at a very low price—four pounds for a dollar. So many physicians have become users of Jersey Cream coffee that the company contracted for twelve pages of advertising in our JOURNAL and they want the members to test the quality of the coffee as they are anxious for confirmation that it is a good brand sold at low prices. A unique feature of the service the company renders is the shipment of freshly ground coffee, every package reaching the consumer within twenty-four hours after grinding. Their announcement appears in the advertising section to which we invite the attention of our members.

A NEW hospital will be built as an addition to State Hospital No. 1, Fulton, to take care of about one hundred and twenty patients. The building will be fireproof and modern in every particular with a sleeping porch fifty feet wide. The building will cost about \$85,000 and be completed about December 15. This addition will partially relieve the congestion at State Hospital No. 1, but it will not take care of the large overflow that has crowded the institution for a long time, there being 1,400 people at the hospital, which is 400 more than the hospital contemplated accommodating. Last

March 11 ex-service men were moved from the Fulton Hospital to State Hospital No. 4 at Farmington so that they could have the advantage of the cottage plan of treatment.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Intra Products Co.: Ven Sterile Solution Procaine 1 per cent.

G. W. Carrick Co.: Epinephrine-G. W. C. Co., Epinephrine Chloride Solution-G. W. C. Co.

Intra Products Co.: Phenolsulphonephthalein-Ipco, Ven Sterile Solution Phenolsulphonephthalein, 1 c.c.

Lederle Antitoxin Laboratories: Pollen Diagnostics-Lederle.

H. K. Mulford Co.: Diphtheria Toxin-Antitoxin Mixture-Mulford.

National Aniline and Chemical Works: Neutral Acriflavine-Heyl, Tablets Neutral Acriflavine-Heyl, 0.1 gm. (1½ grs.), Neutral Acriflavine-Heyl Throat Tablets, Neutral Acriflavine-Heyl "Pro Injectione," 0.5 gm. vials, Neutral Acriflavine-Heyl "Pro Injectione," 1.0 gm. vials.

Winthrop Chemical Co.: Luminal Tablets, ¼ grain.

At the request of some ophthalmologists in this country, a course in ophthalmology will be given at the University of Vienna next fall beginning October 2 and continuing until November 25. The entire material of the eye clinics at the University of Vienna will be at the disposal of the staff for the purpose of instruction and demonstration. The course will be given in English and a minimum of ten registrants is required. The maximum number that will be accepted for the course is fifteen. The fee will be \$200. Applications for registration should be in the hands of Dozent Dr. A. Fuchs by August 15, accompanied by a certified check or draft in dollars to the amount of \$50. It is requested that those who desire to take the course make application as early as possible, addressing Dozent Dr. A. Fuchs, I Augenlinik IX, Alserstrasse 4, Vienna. The course as outlined will include the following:

Photography of fundus, 2 hours. Professor Dimmer.

Operations, 30 hours. Professor Meller.

General diagnosis, 10 hours. Professor Meller.

Physiology and optics, 20 hours. Doz. Lauber.

Red free light and slitlamp, 28 hours. Doz. Lauber.

Refraction, 20 hours. Doz. Lindner.

Bacteriology, 20 hours. Doz. Lindner.

Retinoscopy, 8 hours. Doz. Lindner.

Radium therapy, 1 hour. Doz. Kummer.

Hypophysis, 2 hours. Doz. Hirsch.

Muscles, 20 hours. Doz. Bachstetz.

Neurology, 8 hours. Doz. Bachstetz.

Anatomy of orbit, 8 hours. Doz. Fuchs.

Normal histology, 10 hours. Doz. Fuchs.

Pathology, 30 hours. Doz. Fuchs.

General therapy and anesthetics, 3 hours. Doz. Fuchs.

Ophthalmoscopy, 40 hours. Doz. Guist.

PLANS for the new medical building at the State University, Columbia, have been completed and bids are being received. In the new addition the curators have in mind three things: First, to equalize laboratory space in the several fundamental branches so that all the major laboratories will accommodate as many students as are now accommodated in the largest of the laboratories, namely, that of anatomy. For some time the school has been able to enroll more students in the beginning courses in anatomy than could possibly be accommodated in the courses of the second year; second, to provide adequate space for the medical library; and, third, to increase materially the space devoted to advanced and research work. To do these things with the relatively small amount of space at hand has been a difficult problem but the curators believe that the architect and faculty committee have accomplished the three ends sought for with unusual success. The addition will be made at the east end of the present medical laboratory building and when completed will be equal to one-half the length of the present building. All the laboratory departments will profit both in point of increased space and added facilities for the research laboratories, and a very complete and satisfactory arrangement has been made for a new library. There will be a small journal room and a reading and stack room combined, the stack room having capacity for 1,500 volumes. This will house only the departmental library of the school of medicine which is made up of such reference material as is in more or less constant use by students. A small amount of space on the second floor will be made use of for administrative purposes and for a women's reading and rest room. While the addition to the medical building will not take care of a material increase in the enrollment in the school of medicine it will relieve very greatly the trying situation that has developed in recent years due to the excessive overcrowding in all the laboratories.

MISCELLANY

PRINCIPLES OF MEDICAL ETHICS

CHAPTER I

The Duties of Physicians to Their Patients

THE PHYSICIAN'S RESPONSIBILITY

SECTION 1.—A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession an individual assumes an obligation to conduct himself in accord with its ideals.

PATIENCE, DELICACY AND SECRECY

SEC. 2.—Patience and delicacy should characterize all the acts of a physician. The confidences concerning individual or domestic life entrusted by a patient to a physician and the defects of disposition or flaws of character observed in patients during medical attendance should be held as a trust and should never be revealed except when imperatively required by the laws of the state. There are occasions, however, when a physician must determine whether or not his duty to society requires him to take definite action to protect a healthy individual from becoming infected, because the physician has knowledge, obtained through the confidences entrusted to him as a physician of a communicable disease to which the healthy individual is about to be exposed. In such a case, the physician should act as he would desire another to act toward one of his own family under like circumstances. Before he determines his course, the physician should know the civil law of his commonwealth concerning privileged communications.

PROGNOSIS

SEC. 3.—A physician should give timely notice of dangerous manifestations of the disease to the friends of the patient. He should neither exaggerate nor minimize the gravity of the patient's condition. He should assure himself that the patient or his friends have such knowledge of the patient's condition as will serve the best interests of the patient and the family.

PATIENTS MUST NOT BE NEGLECTED

SEC. 4.—A physician is free to choose whom he will serve. He should, however, always respond to any request for his assistance in an emergency or whenever temperate public opinion expects the service. Once having undertaken a case, a physician should not abandon or neglect the patient because the disease is deemed incurable; nor should he withdraw from the case for any reason until a sufficient notice of a desire to be released has been given the patient or his friends to make it possible for them to secure another medical attendant.

CHAPTER II

The Duties of Physicians to Each Other and to the Profession at Large

ARTICLE I.—DUTIES TO THE PROFESSION

UPHOLD HONOR OF PROFESSION

SECTION 1.—The obligation assumed on entering the profession requires the physician to comport

himself as a gentleman and demands that he use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness. A physician should not base his practice on an exclusive dogma or sectarian system, for "sects are implacable despots; to accept their thralldom is to take away all liberty from one's action and thought." (Nicon, father of Galen.)

DUTY OF MEDICAL SOCIETIES

SEC. 2.—In order that the dignity and honor of the medical profession may be upheld, its standards exalted, its sphere of usefulness extended, and the advancement of medical science promoted, a physician should associate himself with medical societies and contribute his time, energy and means in order that these societies may represent the ideals of the profession.

DEPORTMENT

SEC. 3.—A physician should be "an upright man, instructed in the art of healing." Consequently, he must keep himself pure in character and conform to a high standard of morals, and must be diligent and conscientious in his studies. "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life." (Hippocrates.)

ADVERTISING

SEC. 4.—Solicitation of patients by circulars or advertisements, or by personal communications or interviews, not warranted by personal relations, is unprofessional. It is equally unprofessional to procure patients by indirection through solicitors or agents of any kind, or by indirect advertisement, or by furnishing or inspiring newspaper or magazine comments concerning cases in which the physician has been or is concerned. All other like self-laudations defy the traditions and lower the tone of any profession and so are intolerable. The most worthy and effective advertisement possible, even for a young physician, and especially with his brother physicians, is the establishment of a well-merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct. The publication or circulation of ordinary simple business cards, being a matter of personal taste or local custom, and sometimes of convenience, is not *per se* improper. As implied, it is unprofessional to disregard local customs and offend recognized ideals in publishing or circulating such cards.

It is unprofessional to promise radical cures; to boast of cures and secret methods of treatment or remedies; to exhibit certificates of skill or of success in the treatment of diseases; or to employ any methods to gain the attention of the public for the purpose of obtaining patients.

PATIENTS AND PERQUISITES

SEC. 5.—It is unprofessional to receive remuneration from patients for surgical instruments or medicines; to accept rebates on prescriptions or surgical appliances, or perquisites from attendants who aid in the care of patients.

MEDICAL LAWS—SECRET REMEDIES

SEC. 6.—It is unprofessional for a physician to assist unqualified persons to evade legal restrictions governing the practice of medicine; it is equally unethical to prescribe or dispense secret

medicines or other secret remedial agents, or manufacture or promote their use in any way.

SAFEGUARDING THE PROFESSION

SEC. 7.—Physicians should expose without fear or favor, before the proper medical or legal tribunals, corrupt or dishonest conduct of members of the profession. Every physician should aid in safeguarding the profession against the admission to its ranks of those who are unfit or unqualified because deficient either in moral character or education.

ARTICLE II.—PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER

PHYSICIANS DEPENDENT ON EACH OTHER

SECTION 1.—Experience teaches that it is unwise for a physician to treat members of his own family or himself. Consequently, a physician should always cheerfully and gratuitously respond with his professional services to the call of any physician practicing in his vicinity, or of the immediate family dependents of physicians.

COMPENSATION FOR EXPENSES

SEC. 2.—When a physician from a distance is called on to advise another physician or one of his family dependents, and the physician to whom the service is rendered is in easy financial circumstances, a compensation that will at least meet the traveling expenses of the visiting physician should be proffered. When such a service requires an absence from the accustomed field of professional work of the visitor that might reasonably be expected to entail a pecuniary loss, such loss should, in part at least, be provided for in the compensation offered.

ONE PHYSICIAN TO TAKE CHARGE

SEC. 3.—When a physician or a member of his dependent family is seriously ill, he or his family should select a physician from among his neighboring colleagues to take charge of the case. Other physicians may be associated in the care of the patient as consultants.

ARTICLE III.—DUTIES OF PHYSICIAN IN CONSULTATIONS

CONSULTATIONS SHOULD BE REQUIRED

SECTION 1.—In serious illness, especially in doubtful or difficult conditions, the physician should request consultations.

CONSULTATION FOR PATIENT'S BENEFIT

SEC. 2.—In every consultation, the benefit to be derived by the patient is of first importance. All the physicians interested in the case should be frank and candid with the patient and his family. There never is occasion for insincerity, rivalry or envy and these should never be permitted between consultants.

PUNCTUALITY

SEC. 3.—It is the duty of a physician, particularly in the instance of a consultation, to be punctual in attendance. When, however, the consultant or the physician in charge is unavoidably delayed, the one who first arrives should wait for the other for a reasonable time, after which the consultation should be considered postponed. When the consultant has come from a distance, or when for any reason it will be difficult to meet the phy-

sician in charge at another time, or if the case is urgent, or if it be the desire of the patient, he may examine the patient and mail his written opinion, or see that it is delivered under seal, to the physician in charge. Under these conditions, the consultant's conduct must be especially tactful; he must remember that he is framing an opinion without the aid of the physician who has observed the course of the disease.

PATIENT REFERRED TO SPECIALIST

SEC. 4.—When a patient is sent to one specially skilled in the care of the condition from which he is thought to be suffering, and for any reason it is impracticable for the physician in charge of the case to accompany the patient, the physician in charge should send to the consultant by mail, or in the care of the patient under seal, a history of the case, together with the physician's opinion and an outline of the treatment, or so much of this as may possibly be of service to the consultant; and as soon as possible after the case has been seen and studied, the consultant should address the physician in charge and advise him of the results of the consultant's investigation of the case. Both these opinions are confidential and must be so regarded by the consultant and by the physician in charge.

DISCUSSIONS IN CONSULTATION

SEC. 5.—After the physicians called in consultation have completed their investigations of the case, they may meet by themselves to discuss conditions and determine the course to be followed in the treatment of the patient. No statement or discussion of the case should take place before the patient or friends, except in the presence of all the physicians attending, or by their common consent; and no opinions or prognostications should be delivered as a result of the deliberations of the consultants, which have not been concurred in by the consultants at their conference.

ATTENDING PHYSICIAN RESPONSIBLE

SEC. 6.—The physician in attendance is in charge of the case and is responsible for the treatment of the patient. Consequently, he may prescribe for the patient at any time and is privileged to vary the mode of treatment outlined and agreed on at a consultation whenever, in his opinion, such a change is warranted. However, at the next consultation, he should state his reasons for departing from the course decided on at the previous conference. When an emergency occurs during the absence of the attending physician, a consultant may provide for the emergency and the subsequent care of the patient until the arrival of the physician in charge, but should do no more than this without the consent of the physician in charge.

CONFLICT OF OPINION

SEC. 7.—Should the attending physician and the consultant find it impossible to agree in their view of a case another consultant should be called to the conference or the first consultant should withdraw. However, since the consultant was employed by the patient in order that his opinion might be obtained, he should be permitted to state the result of his study of the case to the patient, or his next friend in the presence of the physician in charge.

CONSULTANT AND ATTENDANT

SEC. 8.—When a physician has attended a case as a consultant, he should not become the attendant of the patient during that illness except with the

consent of the physician who was in charge at the time of the consultation.

ARTICLE IV.—DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE

CRITICISM TO BE AVOIDED

SECTION 1.—The physician, in his intercourse with a patient under the care of another physician, should observe the strictest caution and reserve; should give no disingenuous hints relative to the nature and treatment of the patient's disorder; nor should the course of conduct of the physician, directly or indirectly, tend to diminish the trust reposed in the attending physician.

SOCIAL CALLS ON PATIENT OF ANOTHER PHYSICIAN

SEC. 2.—A physician should avoid making social calls on those who are under the professional care of other physicians without the knowledge and consent of the attendant. Should such a friendly visit be made, there should be no inquiry relative to the nature of the disease or comment upon the treatment of the case, but the conversation should be on subjects other than the physical condition of the patient.

SERVICES TO PATIENT OF ANOTHER PHYSICIAN

SEC. 3.—A physician should never take charge of or prescribe for a patient who is under the care of another physician, except in an emergency, until after the other physician has relinquished the case or has been properly dismissed.

CRITICISM TO BE AVOIDED

SEC. 4.—When a physician does succeed another physician in the charge of a case, he should not make comments on or insinuations regarding the practice of the one who preceded him. Such comments or insinuations tend to lower the esteem of the patient for the medical profession and so react against the critic.

EMERGENCY CASES

SEC. 5.—When a physician is called in an emergency and finds that he has been sent for because the family attendant is not at hand, or when a physician is asked to see another physician's patient because of an aggravation of the disease, he should provide only for the patient's immediate need and should withdraw from the case on the arrival of the family physician after he has reported the condition found and the treatment administered.

WHEN SEVERAL PHYSICIANS ARE SUMMONED

SEC. 6.—When several physicians have been summoned in a case of sudden illness or of accident, the first to arrive should be considered the physician in charge. However, as soon as the exigencies of the case permit, or on the arrival of the acknowledged family attendant or the physician the patient desires to serve him, the first physician should withdraw in favor of the chosen attendant; should the patient or his family wish someone other than the physician known to be the family physician to take charge of the case the patient should advise the family physician of his desire. When, because of sudden illness or accident, a patient is taken to a hospital, the patient should be returned to the care of his known family physician as soon as the condition of the patient and the circumstances of the case warrant this transfer.

A COLLEAGUE'S PATIENT

SEC. 7.—When a physician is requested by a colleague to care for a patient during his temporary absence, or when, because of an emergency, he is asked to see a patient of a colleague, the physician should treat the patient in the same manner and with the same delicacy as he would have one of his own patients cared for under similar circumstances. The patient should be returned to the care of the attending physician as soon as possible.

RELINQUISHING PATIENT TO REGULAR ATTENDANT

SEC. 8.—When a physician is called to the patient of another physician during the enforced absence of that physician, the patient should be relinquished on the return of the latter.

SUBSTITUTING IN OBSTETRIC WORK

SEC. 9.—When a physician attends a woman in labor in the absence of another who has been engaged to attend, such physician should resign the patient to the one first engaged, upon his arrival; the physician is entitled to compensation for the professional services he may have rendered.

ARTICLE V.—DIFFERENCES BETWEEN PHYSICIANS
ARBITRATION

SECTION 1.—Whenever there arises between physicians a grave difference of opinion which cannot be promptly adjusted, the dispute should be referred for arbitration to a committee of impartial physicians, preferably the Board of Censors of a component county society of the American Medical Association.

ARTICLE VI.—COMPENSATION
LIMITS OF GRATUITOUS SERVICE

SECTION 1.—The poverty of a patient and the mutual professional obligation of physicians should command the gratuitous services of a physician. But institutions endowed by societies, and organizations for mutual benefit, or for accident, sickness and life insurance, or for analogous purposes, should be accorded no such privileges.

CONTRACT PRACTICE

SEC. 2.—It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession.

SECRET DIVISION OF FEES CONDEMNED

SEC. 3.—It is detrimental to the public good and degrading to the profession, and therefore unprofessional, to give or to receive a commission. It is also unprofessional to divide a fee for medical advice or surgical treatment, unless the patient or his next friend is fully informed as to the terms of the transaction. The patient should be made to realize that a proper fee should be paid the family physician for the service he renders in determining the surgical or medical treatment suited to the condition, and in advising concerning those best qualified to render any special service that may be required by the patient.

CHAPTER III

The Duties of the Profession to the Public

PHYSICIANS AS CITIZENS

SECTION 1.—Physicians, as good citizens and because their professional training specially qualifies them to render this service, should give advice concerning the public health of the community. They should bear their full part in enforcing its laws and sustaining the institutions that advance the interests of humanity. They should co-operate especially with the proper authorities in the administration of sanitary laws and regulations. They should be ready to counsel the public on subjects relating to sanitary police, public hygiene and legal medicine.

PHYSICIANS SHOULD ENLIGHTEN PUBLIC—
DUTIES IN EPIDEMICS

SEC. 2.—Physicians, especially those engaged in public health work, should enlighten the public regarding quarantine regulations; on the location, arrangement and dietaries of hospitals, asylums, schools, prisons and similar institutions; and concerning measures for the prevention of epidemic and contagious diseases. When an epidemic prevails, a physician must continue his labors for the alleviation of suffering people, without regard to the risk to his own health or life or to financial return. At all times, it is the duty of the physician to notify the properly constituted public health authorities of every case of communicable disease under his care, in accordance with the laws, rules and regulations of the health authorities of the locality in which the patient is.

PUBLIC WARNED

SEC. 3.—Physicians should warn the public against the devices practiced and the false pretensions made by charlatans which may cause injury to health and loss of life.

PHARMACISTS

SEC. 4.—By legitimate patronage, physicians should recognize and promote the profession of pharmacy; but any pharmacist, unless he be qualified as a physician, who assumes to prescribe for the sick, should be denied such countenance and support. Moreover, whenever a druggist or pharmacist dispenses deteriorated or adulterated drugs, or substitutes one remedy for another designated in a prescription, he thereby forfeits all claims to the favorable consideration of the public and physicians.

CONCLUSION

While the foregoing statements express in a general way the duty of the physician to his patients, to other members of the profession and to the profession at large, as well as of the profession to the public, it is not to be supposed that they cover the whole field of medical ethics, or that the physician is not under many duties and obligations besides these herein set forth. In a word, it is incumbent on the physician that under all conditions, his bearing toward patients, the public and fellow-practitioners should be characterized by a gentlemanly deportment and that he constantly should behave toward others as he desires them to deal with him. Finally, these principles are primarily for the good of the public, and their enforcement should be conducted in such a manner as shall deserve and receive the endorsement of the community.

THE MEDICAL DEPARTMENT RESERVE CORPS, U. S. ARMY

The National Defense Act as enacted June 4, 1920, directed the Secretary of War to organize the Army in such a manner that complete and immediate mobilization can be accomplished on short notice. The following digest of the act gives the basis of the organization, with special reference to the Medical Department:

Personnel of Medical Department

Medical Department commissioned personnel for an Infantry Division at war strength: Colonels, 1; Lt. Colonels, 1; Majors, 21; Captains or 1st Lieutenants, 125. (This includes the medical regiment.) Total, 148.

Commissioned personnel required for the 327th Medical Regiment, 102d Division, U. S. Army Medical Corps: Colonels, 1; Lt. Colonels, 1; Majors, 11; Captains or 1st Lieutenants, 42 (10 may be Medical Administrative officers); total, 55. Dental Corps: Majors, 1; Captains or 1st Lieutenants, 6. Total, 7. Veterinary Corps: Majors, 1; Captains or Lieutenants, 4. Total, 5. Chaplains, 1. Aggregate, 68.

Necessity for Early Enrollment

In the event of a national emergency declared by Congress calling for the mobilization of the Army of the United States for the national defense the operation of the foregoing plan of the organization of the Army must provide the components for one harmonious, well-balanced, and effective Army, the Army of the United States, consisting of the Regular Army, the National Guard, and the Organized Reserves. Mobilization of the Army will be one of organizations rather than of individuals. The experience of the World War proves conclusively that much time is required to build an organization which can fulfill the above specifications—harmonious, well-balanced and effective. This involves: careful selection of personnel, suitable training and instruction in time of peace.

The first step toward the success of this preparedness plan so far as those eligible for appointment in the Medical Department Officers' Reserve Corps are concerned, is that each one make application as soon as possible for appointment in the Officers' Reserve Corps.

Appointment in the Officers' Reserve Corps

Citizens of the United States or of the Philippine Islands, between the ages of 21 and 60 years, are eligible for appointment.

General Provisions:

a. Those who may be appointed upon examination of military records and physical examination, supplemented by personal examination, if necessary:

1. Former officers of the Regular Army and retired officers.

2. Officers of the Army of the United States at any time between April 6, 1917, and June 30, 1919, and former Reserve officers.

3. National Guard officers holding federal recognition as such on June 4, 1920.

4. Persons who served in the Army between April 6, 1917, and Nov. 11, 1918, and who demonstrated suitability for and were recommended to be appointed commissioned officers in the Army of the United States during the World War.

b. Those who may be appointed upon recommendation of a professor of military science or camp commander at summer camp:

1. Graduates of Reserve Officers' Training Corps.

c. Appointment by examination:

(This section governs the methods of examination and appointment of those persons who had no service during the World War and those who are not otherwise provided for under a and b above.)

Eligibility for Examination:

Applicants must, in time of peace, fulfill the following conditions:

(a) Be between 21 and 60 years of age and citizens of the United States or Philippine Islands.

(b) Have at least a high school education or its equivalent.

(c) Have the qualifications set forth in the succeeding paragraph.

Qualifications—Medical Department

1. Medical Officers' Reserve Corps: Graduates of reputable medical schools which are legally authorized to confer the degree of M.D., or persons who are legally qualified practitioners in the states in which they reside and are engaged in the practice of their profession; also persons who have served satisfactorily for one year as internes in Army hospitals.

2. Dental Officers' Reserve Corps: Graduates of recognized dental schools, legally qualified practitioners in the states in which they reside, and engaged in the practice of their profession.

3. Medical Administrative Officers' Reserve Corps: Persons having at least two years' practical experience in administrative duties pertaining to the Medical Department.

4. Sanitary Officers' Reserve Corps: Persons of broad experience and ability who have had at least two years' practical experience in professions or occupations allied to special duties of the Medical Department, exclusive of administrative duties.

5. Veterinary Officers' Reserve Corps: Graduates of reputable veterinary schools, who are qualified practitioners in the state in which they reside and are engaged in the active practice of their profession.

Application for Appointment—How Made

Application blanks for appointment to the Organized Reserves are to be had upon request in person or by mail at Headquarters 102d Division, U. S. Army, 408 Old Custom House, 3d and Olive Streets, St. Louis.

The following information is required from applicants: a. Name in full. b. Section in which appointment is desired. c. Grade desired. (Former officers are eligible for the highest grade held during the World War.)

Period of Appointment

Appointment in every case shall be for a period of five years. Upon the expiration of the period of appointment, a reappointment without change of grade or section will, in general, be tendered without application. Any reserve officer may hold a commission in the National Guard; and any National Guard officer may hold a commission in the Officers Reserve Corps. Both commissions must be in the same grade.

Training and Instruction

The training and instruction of reserve officers divides broadly into two general classes: First, training when on active duty; second, training and instruction when on an inactive status.

In time of peace the maximum obligation for active duty for reserve officers is 15 days in any one

calendar year. It will in general be impracticable to require this maximum. When officers are to be called for a 15-day training period they will be given as much advance notice as practicable and any officer upon whom such a call to duty would work a hardship may be excused from attendance for that call.

Instruction when on an inactive status will take the form of instruction by Regular Army officers detailed for duty with units of the Organized Reserves, of correspondence courses, or of study engaged in by the officer himself. Within the limits of funds that may be utilized for this purpose, the War Department will make available for the use of reserve officers such publications as are necessary or desirable for their instruction.

For the purpose of training and instruction every available reserve officer will be assigned or attached to a unit of a reserve organization in time of peace.

Organization of the Army

"The organized peace establishment, including the Regular Army, the National Guard, and the Organized Reserves, shall include all of those divisions and other military organizations necessary to form the basis for a complete and immediate mobilization for the national defense in the event of a national emergency declared by Congress."

Tactical Organization

"The Army of the United States shall be organized so far as practicable into brigades, divisions and army corps; and whenever the President may deem it expedient, into armies. . . . Basic tables of organization applicable to the Organized Reserves are the same as those adopted for the Regular Army (war strength)."

Territorial Organization

The principal territorial command within the continental limits of the United States is the corps area. Corps areas are arranged as follows:

First Corps Area: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, Coast Defenses Long Island Sound. Headquarters, Boston, Mass.

Second Corps Area: New York, New Jersey, Delaware, Porto Rico attached for administrative purposes. Headquarters, Governors Island, N. Y.

Third Corps Area: Pennsylvania, Maryland, Virginia, District of Columbia. Headquarters, Fort Howard, Md.

Fourth Corps Area: North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, Louisiana. Headquarters, Fort McPherson, Ga.

Fifth Corps Area: Ohio, West Virginia, Indiana, Kentucky. Headquarters, Fort Benjamin Harrison, Ind.

Sixth Corps Area: Illinois, Michigan, Wisconsin. Headquarters, 1819 W. Pershing Rd., Chicago, Ill.

Seventh Corps Area: Missouri, Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota, South Dakota. Headquarters, Fort Crook, Neb.

Eighth Corps Area: Texas, Oklahoma, Colorado, New Mexico, Arizona. Headquarters, Fort Sam Houston, Texas.

Ninth Corps Area: Washington, Oregon, Idaho, Montana, Wyoming, Utah, Nevada, California, Alaska attached for administrative purposes. Headquarters, Presidio, San Francisco, Calif.

The division into corps areas is based upon military population and normally each corps area is capable of developing an approximately equal number of troops.

The quota in the Organized Reserves normally allotted to each corps area will include three infantry divisions and a proper proportion of corps, army (including cavalry), auxiliary, and special troops.

Based on military population each corps area is divided into division areas. Seventh Corps has been allotted the 88th, 89th and 102d Divisions.

The 102d Division, U. S. Army, is allotted the states of Missouri and Arkansas, Headquarters 408 Old Custom House, 3d and Olive Streets, St. Louis, Missouri.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
 Montgomery County Medical Society, Dec. 15, 1921.
 Chariton County Medical Society, Dec. 23, 1921.
 Webster County Medical Society, Dec. 27, 1921.
 Clark County Medical Society, Jan. 13, 1922.
 Reynolds County Medical Society, Jan. 17, 1922.
 Camden County Medical Society, Feb. 8, 1922.
 Schuyler County Medical Society, Feb. 10, 1922.
 Perry County Medical Society, Feb. 13, 1922.
 Vernon County Medical Society, March 24, 1922.
 Pulaski County Medical Society, March 31, 1922.
 Atchison County Medical Society, March 31, 1922.
 Laclede County Medical Society, April 1, 1922.
 Oregon County Medical Society, May 29, 1922.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met at Liberty, in the office of Dr. F. H. Matthews, on Monday evening, May 1, with seven members in attendance. The meeting was called to order by the president, Dr. E. C. Hill, and the minutes of the previous meetings were read and approved.

Wholly on account of the "dumbness" of an overworked secretary, this meeting was not properly arranged for or it would have been better attended. By the vote last year we were to begin each meeting with dinner. The local program committee somehow failed to functionate—and left it to "George." And George overslept!

After all, the meeting was not a dull one. Cases were reported of interest to all and warmly discussed.

On motion, the chair appointed a committee of three to draft resolutions on the death of Dr. T. N. Bogart, and the following were appointed: Drs. Suddarth, Matthews and Gaines. Their report will be ordered spread on the minutes and a copy furnished to the bereaved family. A report of Dr. Bogart's death had been previously sent to the journals for publication.

Three members paid their dues for 1922 at this meeting and remittance for them accompanies this letter.

The next meeting will be held in Smithville the last Monday in June.

J. J. GAINES, M.D., Secretary.

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met in regular session at Lancaster, on Wednesday, May 10, 1922. The meeting was called to order at 2 p. m.

by Dr. A. J. Drake, vice president. The following were present: Drs. A. J. Drake, W. F. Justice, J. H. Keller, H. E. Gerwig and J. B. Bridges. The minutes of the last meeting were read and approved.

There were no papers read at this meeting, but a number of cases were reported and discussed.

The next meeting will be held at Lancaster, June 28, and we expect to have a good program.

J. B. BRIDGES, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the parlor of the Archer Hotel in Hartville, Thursday, May 11, at 1:15 p. m., with the president, Dr. R. M. Norman, of Ava, in the chair and other members and visitors present as follows: Drs. R. A. Ryan, of Norwood; E. C. Wittner, F. B. Dailey and A. C. Ames, of Mountain Grove; H. A. Lowe, of Springfield, and Fletcher Taylor, of Kansas City.

The minutes of the last meeting were read and approved.

A letter from the secretary of the State Medical Association giving some resolutions of the executive committee concerning fee splitting, was read and discussed but no action taken. A bill for postage and printing of \$3.34 was presented and allowed.

Dr. Lowe read a paper on "Cesarean Section," in which he urged its more frequent use instead of other methods which are more common but which to him appear to be more dangerous to both mother and child. It was the general sense of those present that his idea was right, where hospital facilities are available, but could hardly be applied in country practice, far removed from hospitals.

Dr. Taylor read an excellent paper on "Some Points in the Differential Diagnosis Between Intra-Abdominal and Urological Lesions," which proved of interest to all.

Dr. Dailey reported a case of hysteria which seemed so to border on the supernatural as to defy reasonable explanation.

All the papers were freely discussed.

A vote of thanks was extended to the visitors, with an invitation to come again, and the meeting adjourned to meet at Ava, August 3.

A. C. AMES, Secretary.

BOOK REVIEWS

OPIATE ADDICTION: ITS HANDLING AND TREATMENT.

By Edward Huntington Williams, M.D. Formerly Associate Professor of Pathology, State University of Iowa, etc. Cloth, 194 pp. New York: The Macmillan Co., 1922. Price, \$1.75.

This book appears in a rather attractive style and possibly can be read almost as well by the layman as the physician. It is not highly scientific yet contains much valuable material. In the introduction the author discusses to some extent the Harrison Narcotic Law and the agitation which led up to its enactment. Possibly something additional might have been said regarding the history and development of public opinion relative to the habitués. He informs us that "many habitués are not responsible." Further he says: "He is likely to remain with us." "Is a marked psychotic element in all cases of narcotic addiction." "Many opiate addicts are of the unstable type, usually with a background of bad

heredity that accounts for such cases." He informs us that the frequently quoted phrase, "once an addict always an addict," applied especially to the underworld habitués.

In going into more detail regarding the methods of treatment he divides them into two grand groups as follows: (1) Gradual withdrawal, and (2) rapid withdrawal method. The author does not especially advocate the first named method. He also informs us that using hyoscin is not so dangerous as is generally considered.

For the rapid withdrawal method he insists upon the importance of placing the patient in an institution or a hospital. He also lays a great deal of stress upon the necessity for a skilled assistant, nurse or attendant. Likewise he emphasizes the advantage of a skilled or experienced physician. Never should the patient be treated in his own home.

Following a discussion of these two grand methods several special methods particularly named are discussed.

Finally a number of comments are made upon the syringes of those found regularly in stock, and of some of the improvised ones which are rather striking. The medical habitué and the peddler come in for some comment in the final chapter.

A. L. S.

PRACTICAL INFANT FEEDING. By Lewis Webb Hill, M.D., Junior Assistant Physician to the Children's Hospital, Boston; Assistant in Pediatrics, Harvard Medical School. Octavo of 483 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$5.00 net.

The pediatrician as well as the general practitioner will find this book very useful. The author has made clear the practical application of the research in the physiology and pathology of digestion and nutrition that has been made in recent years. References to the literature are given at the bottom of each page. The author is an exponent of the gravity cream and skim milk mixtures in the method of milk modification although he states that the simple whole milk dilutions are becoming very popular. He uses two and two and one-half hour feeding intervals during the first three weeks of life. In the choice of sugar he prefers lactose. Teachers of the so-called "caloric method" of feeding will justly find fault with the manner in which he presents this "method" and the table he uses to illustrate its shortcomings.

The classification of diarrheal diseases is very simple and practical. The chapter on the management of premature infants is written by Dr. William M. Howel and is very good.

There are chapters on the nutritional diseases, scurvy, spasmophilia, rickets; and the chapter on eczema is excellent. Taken as a whole the book is up-to-date, thorough and practical.

H. C. D.

AN ESSAY ON THE PHYSIOLOGY OF MIND. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia. 12mo. of 150 pages. Philadelphia and London: W. B. Saunders Company, 1922. Cloth, \$1.75 net.

This is a book of 150 pages, unbroken by chapters but minutely analyzed in the table of contents and supplied with an adequate index.

The author shows how the transition from fixed reactions in simple organisms to variable and adaptable reactions in higher organisms is accompanied by a progressive complexity in the nervous system. He indicates also the exquisite analogy between the processes of nervous activity and those of mental

activity. In an appendix he suggests a neurological basis for disordered mental activity. Just as any scientific explanation of consciousness must be in terms of the physiology of the nervous system, the writer's treatment of psychopathology is far more satisfactory than any purely psychogenetic method.

Perhaps the most fundamental contention in the essay is that the dual (mind and matter) conception of the universe is not only unnecessary but impossible.

This book is ample justification of Doctor Dercum's steadfastness in refusing to be driven into psychogenetic hypotheses some twenty years ago when so many neuropathologists despaired of the slow progress in their own field. E. T. C.

NEW AND NONOFFICIAL REMEDIES, 1922. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1922. Cloth. Price, postpaid, \$1.50. Pp. 417+XXXIV. Chicago: American Medical Association, 1922.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deemed worthy of recognition. In addition to the descriptions of proprietary preparations, the book contains descriptions of those nonofficial remedies which the Council deemed deserving of consideration by the profession.

To be admitted to New and Nonofficial Remedies it is required that the quantitative composition of the article be declared, that the therapeutic claims made in marketing the article must be truthful and that the preparation has, or gives promise of having, therapeutic value.

The descriptions of articles are based in part on investigations made by or under the direction of the Council and in part on information submitted by the manufacturer or his agent. However, statements made by those interested in the manufacture or marketing of an article are accepted only if they are supported by substantiating evidence or conform to generally accepted facts. Physicians, therefore, may use the book as a guide in determining whether or not a given proprietary preparation is indicated in the treatment of their patients. The interests of the patients and of the physicians themselves will be safeguarded by following the suggestions made in *The Journal of the American Medical Association* ("Helping the Council," *J. A. M. A.*, Nov. 6, 1920, p. 1275) and by giving no consideration to any proprietary medicinal agent which has not been admitted to New and Nonofficial Remedies.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each is preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

A glance at the preface of this volume shows that the book has been extensively revised. In fact, each edition of New and Nonofficial Remedies is essentially a newly written book, brought up to date by those who speak with authority on the various phases of therapeutics.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the References to Proprietary and Unofficial Articles not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles which have appeared in *The Journal of the American Medical Association*.

New and Nonofficial Remedies should be in the hands of all physicians who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipt of one dollar and fifty cents.

BASAL METABOLISM: ITS DETERMINATION AND APPLICATION. Boston 47 Mass. The Sanborn Company, 1922. Price, \$7.00.

This book is designed as a guide to those making tests and as an aid to the interpretation of tests in metabolism. The subject matter of the book is not new but is a compilation of articles, or abstracts of articles, that have appeared on basal metabolism from time to time by well-known writers on this subject. These authors include Eugene DuBois, Charles H. Frazier, John T. King, Jr., H. D. Haskins, Frank H. Lahey, Stuart McGuire, H. O. Mosenthal, John L. Tierney, as well as other well-known experts on this subject.

The perusal of this book will serve the practitioner for orientation on this important subject and save him a lot of labor in searching through the general literature. Basal metabolism estimation has got to come as an almost routine procedure. Just as the clinical thermometer, the stethoscope and the blood pressure outfit have become a part of the doctor's equipment, so must the basal metabolism machine be included if correct and scientific diagnosis is desired and a knowledge of the results of a given course of treatment (particularly on thyroid hypothyroidism and hyperactivity) is to be observed.

R. L. T.

A MANUAL OF CLINICAL LABORATORY METHODS. By Clyde Lottridge Cummer, Ph.B., M.D., Associate Professor of Clinical Pathology, School of Medicine, Western Reserve University, etc. Illustrated with 136 Engravings and 8 Plates. Lea & Febiger, Publishers, Philadelphia and New York, 1922.

Despite the fact that it would seem impossible to get out anything new and worth while on the subject of laboratory technic, still (to use the good old bromide) this book fills a long felt want. Its best feature is that it is neither too long nor too short. We have dozens of manuals on this subject any of which are liable to leave out just the thing we want, and we have dozens of massive tomes in which it is necessary to read some twenty or thirty pages to find the particular paragraph that we want. This book seems to cover all the ground concisely and at the same time thoroughly. Preferred methods are given as a rule rather than a number of inferior methods.

The usual subjects are covered, such as blood and blood chemistry, serology, urine, stomach and duodenum, feces, sputum, body fluids, bacteriology, staining methods, preparation of vaccines, etc.

The book is well printed and adequately illustrated and contains less than five hundred pages.

R. L. T.

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ORIGINAL ARTICLES

SOME ACCOMPLISHMENTS OF ORGANIZED MEDICINE IN MISSOURI*

President's Address

ALBERT H. HAMEL, M.D.

ST. LOUIS

The first item on the program is the usual infliction of the "swan song" of the retiring president. I will promise you to be very brief. I have not prepared a thesis nor do I expect to discuss with you any theoretical or scientific question. But I am going to try to give you a brief résumé of the status of medicine as we have it in Missouri today.

The Missouri State Medical Association is in an admirably healthy, virile state. The sum total of the membership of the Association is about thirty-five hundred, new additions being made each day. Our treasury, as you know from the report today, is in most excellent condition.

I propose to discuss with you some of the advanced legislative features that have been accomplished since my predecessor gave up his office. I think there is much of which we should be proud, because there were two acts that were enacted in the late legislature which I will not go into very fully nor pretend to analyze.

Our Association has for years endorsed the proposition of consolidating the various eleemosynary institutions, bringing them under competent management and trying to eliminate the political removal of competent servants. This, I am happy to say, is now in complete effect. I do not propose to analyze or discuss this question because Dr. Ard will go into that very fully.

Another forward movement was accomplished through the Association's activities, namely, the re-establishment of the four-year medical course at our State University. I will

not go into details as Dr. Noyes will fully explain the plan.

There are many questions that are redounding to the great good of our state. In the local and component societies we have accomplished much. In the St. Louis Medical Society—the largest component Society in the state—we have for the first time in the history of the American nation written on the statute books, in spite of a tremendous opposition, a law favoring vivisection, a law that permits the City of St. Louis to sell impounded dogs to reputable medical schools for use in scientific investigations. This was very recently enacted by the City of St. Louis. This, I say, was accomplished in spite of the most virulent and the most terrific attack on the part of the anti-vivisectionists.

Another very great forward movement that has transpired also in the City of St. Louis, due very largely to the splendid work of our fellow member, Dr. Bliss, was the installation and incorporation of a psychiatric clinic for the careful study of youthful delinquents, with the view of correcting mental deficiencies that result in criminal tendencies.

So all in all, it seems to me we have much of which we should be proud. We are gaining the confidence of the general public. The general public is favoring all things that pertain to medical legislation which safeguards the health of the people.

There is one question I should like very much to touch upon, and that is the question of reactionary legislation which, happily, for the time being is in abeyance. It became necessary in order to uphold the dignity that the state has so long enjoyed from the standpoint of its medical practice act, to consider whether or not this Association, which has stood for higher standards and progressive work in medical affairs, should permit Senate Bill No. 433 to become a law.

Through the activities of the St. Louis Medical Society a referendum on Senate Bill No. 433 was instituted. The State Association had not entered actively into this proposition at that time, but later entered actively

*Read at the Sixty-Fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

into the campaign and is now in full charge of the court procedure. I want to say in all deference to all parties concerned, that the referendum instituted on this Bill was in no wise a political move. It was simply to conserve that which we regarded as sacred. It was conducted under the most strenuous circumstances and trials. We would not permit it to enter the channels of partisan politics, and we attempted to get the referendum filled from our own resources. As many of you know, the referendum is now in process of court procedure.

To give you an idea as to the cost to the profession of Missouri in prosecuting this referendum, I will say that the circulation of the petition cost \$6,500. This sum was raised almost exclusively by private contributions from doctors. About \$1,200 was raised through the Missouri Public Health League, which represents some four thousand members. Since the referendum has been taken into court we have already paid in court and referee costs something like \$2,000.

There is a faint possibility we may win in the Supreme Court. Losing in the Supreme Court it will cost us an additional \$4,500 court costs, lawyers' fees, and incidentals. Winning in the Supreme Court it will mean a tax upon our resources to an extent of about \$1,500. Win or lose, the St. Louis Medical Society and the State Association have felt that notwithstanding the total expenditure of something like \$12,000 or \$13,000, it has been well spent because it has incited the doctors to a fuller responsibility of their duty to the state. So much for legislation.

There are many other features pertaining to the practice of medicine, and there is one question which it seems to me the medical profession must face. We need a new practice act. We need a practice act that will be sufficiently broad to incorporate under the jurisdiction of the Missouri State Board of Health—and we have a splendid Board of Health. We need a practice act sufficiently broad to bring all of the cult practitioners under the direct jurisdiction of the State Board of Health.

Many of the health laws of Missouri are not being enforced. The Missouri State Board of Health cannot properly prosecute cases because of the lack of proper legal talent that should always be available to that end. And as I stated in the House of Delegates today, it seems to me that the matter of public health in Missouri is of such grave and immediate importance that there should be at the disposal and direction of the Missouri State Board of Health competent counsel to look after the needs of the state health laws. I am firmly convinced that if many of those cases are

properly prosecuted the results will redound to the very great benefit of our state.

There is another very grave and important question, and it seems to me an ever-present question. We have heard in the House of Delegates today the status of the medical man, of the trained nurse, and the unfortunate position of the assistant nurse.

We know that modern hospitalization is a matter of tremendous cost to the rank and file of our citizenship. There is splendid provision made in every village, city and hamlet for the care of the sick of two classes, and two classes only—the very rich—those in comfortable circumstances—receive the very best attention. The very poor—the indigent poor—receive equally good attention. But the crush and stress of the greatest necessity, as I see it as a man in general practice, is that the great middle class must have the proper medical and hospital care at a reasonable cost. Because when all is said and done, these great hospitals are being maintained at the expense of the life blood of the men and women earning monthly salaries of from one to two hundred dollars.

Now to my mind, it would seem to be a very feasible plan to have some sort of state or county hospitals—preferably the county—wherein our people can be properly cared for and treated without having to confiscate an entire estate. This is a matter that is seriously agitating the minds of the men in general practice and demands a solution. I do not know how it appeals to the men in special work, but the time has come when we must realize that the suffering public must have hospital and nursing facilities on a basis within their reach.

There are many other features in medicine. There is sentimentalism in legislation as there is sentimentalism and an abnormal status in the living of the average person today.

There is a question which I do not feel competent to discuss. I merely hint at the length and breadth of the proposition which for a better name we will call "state medicine." State medicine with its national gratuities is a very important thing. State medicine, so far as it relates to preventive medicine, is a thing that has the absolute sanction of every honest doctor. But with the multiplicity of clinicians working hither and thither without any specially organized effort or conjunction with your county society, there is a serious and grave question as to the paternalistic idea we are rapidly approaching.

I have been in a number of medical societies in which state medicine and paternalistic medicine have been discussed. The thing is absolutely not in a concrete form. The average doctor who is meeting and treating the sick is

not in position to give an opinion. But the flood of sentiment is demonstrating itself in one direction. If American medicine proceeds along the line of our English brethren, I say to you gentlemen of the Missouri State Medical Association we are riding to a crash.

I do not condemn state medicine. I merely suggest that this is a matter which is well worthy of our earnest consideration. I do say that when the state or federal government exerts its energies and spends its funds for the purpose of making health surveys, and of treating the indigent poor, it is to be commended, but when the state and the federal government go beyond making the surveys and caring for the indigent poor, I say that we had best be on our guard.

These are just a few suggestions I have to give you. I promised you I would speak but a few moments. My sermon is ended. This is my "swan song," and as I retire tomorrow from the presidency of one of the greatest medical organizations in the United States—and I will say the Missouri State Medical Association ranks third in the entire union in efficiency and organization and management—it is with profound pleasure that I extend to you, my fellow workers, my sincerest and best thanks for your hearty support during the past year.

1460 S. Grand Ave.

THE PLAN FOR RE-ESTABLISHING THE FOUR YEARS' COURSE IN THE SCHOOL OF MEDICINE AT THE UNIVERSITY OF MISSOURI*

GUY L. NOYES, M.D.

COLUMBIA, MO.

That a statement with regard to the organization of a new medical school, or the reorganization of an old one, should be considered as of sufficient importance to have attention by this Association at this time is to me highly significant. The days are well within the memory of all of us when the birth, death, marriage, divorce or other crisis in the life of a medical school in Missouri created scarcely a ripple of comment. The reason for such indifference is easily understood when one recalls that in the period of thirty years following 1873 thirty new medical schools came into being in this state. In the same period twenty-five schools ceased to retain their identity. The activities of medical colleges in those days in the processes of amalgamation and affiliation might fairly be characterized as promiscuous. It must have become a very difficult and confusing task, in

fact something of a sporting proposition, for a loving medical alumnus to follow the compromising meanderings of his Alma Mater.

But another day has come and we find that the mere announcement of the proposed rehabilitation of the Division of Medicine in the State University creates interest in the far corners of the state. We are aware that the beneficent interest of the medical profession is born of a desire to assure itself that in undertaking this project in education the University is proceeding with full understanding of all the obligations involved in so great a task.

I am very grateful therefore for this opportunity to lay before you the general plan of the University with regard to the re-establishment of the full four years' course in medicine. We hope that you will find adequate our conception of the scope and type of school that we are projecting. At this time it may be proper to call attention very briefly to certain facts in connection with the recent history of the medical school that may not be clearly recalled by all.

No degrees in medicine have been conferred by the University since 1909. In that year the School of Medicine assumed the status of a so-called two years school. The situation then existing is well indicated by the announcement made by the University at that time. It reads as follows: "Owing to the limited clinical facilities in Columbia the last two years of the curriculum have been temporarily suspended." The University relinquished the clinical portion of the medical course very reluctantly. It was perfectly clear to us that to do otherwise involved lowering of standards and there was therefore no alternative except to offer that work in the medical school that could be done creditably and for the time being abandon even the effort to do more.

It should be pointed out I think that if the University had been able to establish hospital facilities and to properly support them, as it started to do in 1900, there would have been no need to abandon clinical teaching in 1909. We have the opportunity now to profit by the experience of other schools in the decade that has passed. The whole lesson of that experience is encouraging to us and serves to justify fully our present contention that with some wise legislation and sufficient funds a most excellent clinical establishment can be set up at the University.

Never until within the last few months has it seemed wise to our Board of Curators that the University should undertake the maintenance of clinical teaching for we are persuaded that no institution should assume the main-

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, May 2, 3, 4, 1922.

tenance of medical education unless it can do its full duty by that undertaking.

We have wanted to teach the full four years' course of medicine at the University for many reasons. We believe it to be the duty of the State to maintain a medical school in the highest state of efficiency. Moreover, we believe that a medical education should be as free to the well-prepared youth of our state as training in engineering, law, journalism, commerce, etc. It follows that if this condition is to prevail the state must bring it about, for the cost of a medical education to the student, if furnished at the cost to produce it, is now prohibitive to a very great many well-prepared boys and girls. The effect of this economic situation is to exclude from our profession many very desirable individuals. It may also in very small degree have a bearing on the difficult situation that prevails in the rural districts with regard to medical service. We feel also that the mere fact of the existence of a medical school within the University creates conditions so favorable to the University as a whole as to make that of itself a compelling factor in the maintenance of a medical school at the University. Furthermore, we feel that a medical school teaching only the pre-clinical subjects has ceased to be practical and must needs soon be abandoned for the reason that constantly increasing difficulty attaches to the act of placing students in the junior classes of other good schools. The difficulty has come on account of the crowding to capacity of the classes of all the four-year schools. It is obvious that in justice to students this makes necessary the maintenance of a full four years' course.

Clearly recognizing the factors just mentioned and having had a somewhat unique opportunity to observe at first hand the operation of medical schools and state hospitals in small towns and upon the campus of the universities of two of our neighboring states, Governor Hyde was impelled to offer his co-operation and support to the curators of the University in a project to re-establish the full four years' course of medicine at the State University. The curators eagerly embraced this opportunity and the 51st General Assembly in special session appropriated \$250,000 for the erection of a hospital, "contingent upon the Board of Curators establishing, under proper conditions, the full four years' course in the School of Medicine." I believe I have stated correctly the immediate factors which operated to enable us to take the first steps in the rehabilitation of our school. Having presented to you the background with which we are working, may I now briefly tell you of the general plan upon which we are proceeding to fulfill our obligation to the legislature and to

bring about the conditions that must prevail before we shall be justified in inviting young men and women to spend four years in our medical school.

Our ultimate hospital objective is an establishment of approximately 450 beds, of which 300 shall be in a general hospital, 100 in a children's hospital, and 50 in a psychopathic hospital. The funds now at hand will provide only a fraction of this establishment. We are proposing to build a single division of the general hospital, aiming to set up as quickly as possible a general hospital of size sufficient to justify the immediate opening of a State Hospital. All experience shows that if you build and equip a great modern hospital and place in it a competent staff, patients will come to it in constantly increasing numbers. They come to the hospital because of its reputation. We shall not place our main reliance upon this expectation. We shall submit to the next legislature a program to establish a hospital feeder system. Such a system should give enablement and jurisdiction to circuit, county and probate courts to send the indigent sick to the University State Hospital at public expense. The plan should make proper provision for the transportation and safe conduct of patients to and from the hospital. It should make special provision so as to provide easy access to the hospital to children. Provision should also be made for mental and nervous cases. You are all quite well aware, no doubt, of the complete satisfaction that this plan has given to all interested parties in the states of Iowa, Michigan and Minnesota. Virginia has conducted its hospital very successfully without the help of a feeder system.

We are committed to the policy of full-time teaching in the clinical subjects as well as in the pre-clinical subjects. There do appear to be some practical difficulties incident to the inauguration of a system of vocational teaching but as an educational policy we believe it to be sound. As compared with other methods the expense will not be too great. On the whole we feel that the call for full-time clinical teaching is now as compelling as was the call for full-time pre-clinical teaching thirty years ago. It is obvious that this is an educational and not a medical problem. The important thing is to put the student in possession of fine scientific method and technic for they last and even improve by use and the passage of time. A student in possession of these things may make deliberate, independent and consistent clinical observation throughout a lifetime. Without these attributes one is lost, for the so-called clinical facts soon become antiquated.

For several years this Association has been committed to the establishment of a state gen-

eral hospital with medical education as a secondary factor or a by-product, so to speak. The enthusiasm generated by the propagation of the state hospital doctrine has no doubt operated in some degree to benefit the University in its desire to acquire a state hospital for teaching purposes. To us there appears to be no reason why a University Hospital may not perform all, absolutely all, the functions of a so-called state hospital. With the University Hospital now an accomplished fact we are persuaded that it is unnecessary to continue further the agitation for a state hospital in any other sense than that of urging continued extension of the University State Hospital to the point of our final objective. A state teaching hospital at Columbia will render the people of this state a much needed medical service and will perform a double beneficent service. By reason of its connection with the medical school of the University it will render this service more efficiently and economically than it could under any other condition.

We are aware that some difference of opinion prevails with regard to the wisdom of establishing a University Hospital in a small town, with reference particularly to the fancied difficulty of obtaining adequate clinical facilities. The time allotted to me gives me no opportunity to present to you the argument in favor of the University location of the medical school and its hospital in preference to any other place. The arguments seem to us to be compelling and convincing and we are committed to this policy.

Just in this connection I will take the time to call your attention to one very interesting thing. You will recall that for some years the American Medical Association has undertaken to classify all the medical schools of the country into three groups, A, B and C. In the A group are listed all the schools that have been found to possess adequate equipment and facilities and they therefore are spoken of as "acceptable schools."

The other two classes, B and C, are made use of to indicate varying degrees of badness and in them are found the names of the young delinquents and the old offenders against standards. Is it not significant that no Class B school and no Class C school is located in a small town? That all State University hospitals located in small towns are a part of Class A schools and that every last one of the Class B and Class C schools are located in large cities where clinical facilities are abundant. In other words, every school listed as poor, bad, disreputable or nondescript is located in a large city where clinical facilities are unlimited. We shall never relinquish our Class A standing for the sake of mere com-

pleteness in the medical course. When undergraduate clinical teaching is re-established at the University it will be with the consent and approval of those agencies set up by our national organization to pass judgment in such matters.

May I assure you further of our firm conviction that in extending and filling out the medical curriculum, in order to include clinical branches and make the school complete, "it must never be forgotten that the foundation stones upon which all scientific medicine rests are the sciences which may be utilized either in the prevention or cure of disease, and modern medicine cannot progress unless there be precedent progression in the fundamental sciences. In extending the medical course and in providing for clinical teaching, the pre-clinical branches must not be neglected."

You will be anxious to know just when we shall begin clinical teaching. Inasmuch as the funds now at our disposal only make it possible for us to take the very first step in the building of our physical plant I find it difficult to forecast the earliest date for undergraduate teaching. The answer lies very largely with the next general assembly.

The curators have had fresh in their memories the insistent and repeated requests of this Association for the re-establishment of clinical teaching at the University. They have been encouraged by the assurance of your support as pledged in your last formal communication to them on this subject wherein it is stated that the "Association will co-operate with the Board of Curators . . . in any plan the board may devise to the end that the third and fourth years of the medical course may be re-established."

We regret exceedingly that we have not been able before now to avail ourselves of this offer of co-operation but we do now accept it with deep thankfulness. We are conscious that our efforts to re-establish clinical teaching at the University will meet with success in about the same degree as that with which you vouchsafe your support to this project. We are therefore very anxious to deserve your approval and we do most earnestly beg your continued support.

CONGENITAL SYPHILIS AND THE ERUPTION OF THE FIRST TEETH*

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JOPLIN, MO.

The object of this paper is not to make an attempt at covering all of the relations of

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the deciduous teeth to congenital syphilis, but merely to stress what seems to be an important diagnostic point.

There has been an apparent impression that congenital syphilis does not in any way affect the first teeth although Fournier demonstrated a century ago that prenatal syphilis might delay the eruption, alter the shape, size, arrangement and prevent or distort the enamel formation, and Sanchez¹ also noted these effects at the end of the eighteenth century. This impression is due, no doubt, to the fact that in order to have the deciduous teeth affected, the infection must take place before the nineteenth week of intrauterine life and that in those cases death usually occurs before or soon after birth. It is a significant fact that the inception of calcification or dentification of the six-year molar takes place in the twenty-eighth week of interuterine life and consequently, for all practical purposes, it must be considered with the deciduous teeth so far as pre-eruptive changes are concerned.

The relationship between congenital syphilis and the permanent teeth is one that has always been generally understood to such an extent that the finding of the so-called triad—keratitis, deafness and notched incisors or Hutchinson's teeth, has seemed to render a Wassermann or any further proof of syphilitic infection unnecessary. Of late years, the hypoplasia of the six-year molars, which the French call Fournier's tooth and the English Moon's tooth, has become recognized as an equally diagnostic and more frequently present symptom of congenital lues. But any connection between the eruption of the deciduous teeth and this disease has received scant consideration from medical authors. In fact, most of the better known text-books on diseases of children fail to mention any such relationship.

That there is a definite inhibition of the eruption of the first teeth of some children who have a syphilitic taint seems to me to be an unquestionable fact. And the curious feature is that in the cases which I have had that illustrate this condition, there have usually been no other signs or symptoms of the disease. The following three cases are illustrative:

CASE 1. R. S., girl, 2 years old. Brought for delayed dentition, having cut only the four central incisors. Father and mother living and well. This was a first child and the only pregnancy, delivered normally at full term. The child seems absolutely normal aside from her teeth and even somewhat precocious mentally. There was no sign or history indicative of rickets. The physical examination was absolutely negative except for the failure to erupt the remaining deciduous teeth. A Wassermann was one plus, but a hint that the maternal grandfather had died of *tabes dorsalis* caused a Wassermann to be done on the mother which proved

to be three plus. The child was given 0.3 dg. neosalvarsan, and gray powder, one grain three times a day started. Within three weeks, the lateral incisors and the two-year molars were well through. Two weeks later the cuspids had erupted. Treatment, of course, has been continued.

CASE 2. M. L., male, 18 months. Brought because of failure to cut teeth. This child had only the two lower central incisors. This was an only child, the result of the first pregnancy, and here also the physical examination was absolutely negative. Particular attention was made to the search for symptoms of rickets. The blood Wassermann was three plus. Two injections (0.3 dg.) of neosalvarsan were given a week apart and gray powder started. At the end of four weeks all of the deciduous teeth had erupted except the two-year molars.

CASE 3. R. L., male, 20 months of age. Brought for the same complaint. This was a second child, one older child of six being apparently normal. On physical examination the child was found to have only the two lateral incisors above and the central incisors below. The spleen was definitely enlarged and the epitrochlear, axillary and inguinal lymph glands were all palpable. The Wassermann was four plus. Almost immediately after the first administration of neosalvarsan, the incisors had come through, and at the end of seven weeks all of the deciduous teeth had erupted.

Conclusion.—These cases seem to indicate that congenital syphilis may be an even more important cause of failure of the first teeth to erupt than rickets and that the disease may cause no changes whatever in the shape, size, arrangement or interfere in any way with the enamel formation of these deciduous teeth even when the inhibition of eruption has been to a marked degree.

BIBLIOGRAPHY

1. Quoted by Cavallaro: *Dental Cosmos*, 50, Nov., 1908; 51, Jan., 1909.
2. Stoll, H. F.: *Journal A. M. A.*, lxxvii, 919.
3. Royster: *Am. Journal Syph.*, 5-131.

ACRODYNIA IN INFANTS WITH REPORT OF CASES*1

JOHN ZAHORSKY, M.D.

ST. LOUIS

The purpose of this paper is to call attention to a peculiar syndrome of symptoms occurring in infants and young children, the nature of which is still obscure but its strange features stamp it as a distinct disease. I regarded the disease at first as severe forms of pellagra and reported two cases.

The interest of pediatricists was first aroused by the report of a few cases by Bilderbach, of Portland. Dr. Patrick, of Portland, sent a clinical report of one of his cases to Dr. Morse, of Boston, requesting his opinion as

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1. English writers are describing a similar syndrome under the name Erythroderma.

to the nature of the disease. Dr. Morse sent the report to Dr. Weston, of Raleigh, South Carolina, who reported the case before the Section on Pediatrics at the New Orleans meeting of the American Medical Association, 1920. Dr. Weston did not believe that this disease was pellagra, but after studying the literature he concluded that the case resembled acrodynia, a disease described by various French writers almost a century ago.

I have also studied the description of acrodynia as detailed by some of these writers and I cannot find much resemblance to the disease as we find it in infants, as acrodynia seemed to occur in epidemics among the poorly-fed inmates of asylums or in the soldiers' camps.

Nevertheless, as no other name has been proposed, and the term acrodynia has practically been dropped from our nosology, it may serve a good purpose in being used, at least temporarily, to designate this strange disease in young children. The most extensive study of this disease was made by Byfield, of Des Moines, who reported seventeen cases.

The disease occurs most often in breast-fed infants or in infants recently weaned. Its onset is usually insidious but may be abrupt. The initial group of symptoms which are most striking is an acute exanthem which may or may not be associated with an acute respiratory disease. This rash has been variously diagnosed as measles, German measles, scarlet fever, scarlet rash, acute eczema, infantile erythema, etc. Often a febrile movement accompanies this initial rash. Coincident with these symptoms a very troublesome insomnia and anorexia worries the parents. The fever subsides, the rash may fade but rarely completely disappears. It is usually hoped that convalescence will ensue, but in this the parents are disappointed. The child whines and is unhappy all day long and does not sleep at night. If it has been sitting, standing and walking, it is observed that these activities are diminished or entirely suppressed. The limbs seem tender on being moved; the child prefers to lie quiet and not be handled.

The anorexia leads to a loss in weight and the general nutritional state becomes very poor.

Other marked symptoms are excessive salivation and perspiration. The mouth may become sore, the gums tender and swollen. In three of my cases the lower incisors, and in one case the lower canine, became loose in their sockets and fell out. This peculiar loosening of a healthy tooth is very characteristic of the disease, but does not occur in more than one-fourth of all the cases.

The rash is not diagnostic. It may be morbilliform, or scarlatiniform. Most cases show

a diffuse erythema with minute papules scattered over the inflamed parts. Sometimes it looks exactly like an aggravated case of prickly heat. In some cases irregular patches may be found scattered over the trunk and extremities. Secondary infections—furunculosis, impetigo—are very common.

A diagnostic feature of great importance are the changes in the hands and feet. The palms and dorsum of the hands are swollen and bluish-red in appearance. The fingers and toes are markedly swollen. These red, enlarged digits are generally so noticeable that it at once suggests the disease. If you see a young child feeling very miserable and who shows swollen red hands and fingers, acrodynia should at once occur to you.

The digestive tract does not show any definite derangement. Constipation is the rule. One of my cases had persistent, slimy, green passages but no diarrhea.

The respiratory tract is frequently involved in inflammation; bronchitis, otitis and tonsillitis are common. Three of my cases had pneumonia during the course of the disease.

Very pronounced and diagnostic changes are found in the study of the nervous system. At the onset hyperesthesia of the skin and muscles seems most striking. The reflexes are sometimes exaggerated. In all the severe cases, great muscular weakness ensues; often complete paralysis of the lower extremities. The reflexes, both superficial and deep, become very much diminished or even completely abolished. Anesthesia of both lower extremities, except in small spots, was observed in one of my cases. The muscles lack tone and are flaccid. This myotonia is often very striking but the baby objects to being handled.

Photophobia is generally present. No paralysis of the cranial nerves has been observed. In one of my cases a mild optic neuritis was present. No lumbar puncture was made in my cases.

One of the most astonishing changes, which at once places the disease in a class to itself, is the remarkably high leucocyte count. From 12,000 to 40,000 is the usual range. The average, 20,000 to 30,000, is found with astonishing regularity in spite of the fact that no fever is present and no local infection can be demonstrated. This blood change is so different from that found in all the deficiency diseases that it suggests some definite protein poison. The lymphocytes are generally in excess of the polymorphonuclear cells. The red cells show very little change.

To sum up the clinical features: the young child suffers from a dermatitis, polyneuritis and inanition with a pronounced leucocytosis. The course of the disease is slow. Recovery

almost invariably occurs even in the severest forms of the disease, but it takes several months. Meanwhile the baby is very susceptible to secondary infections of the skin and mucous membrane from which it may succumb.

The therapeutics consists in forced feeding of a diet rich in vitamins and symptomatic treatment.

What is the nature of this disease? It was suggested that it might be a deficiency disease. Possibly there is something wrong in the diet of the mother who is nursing the baby. Clinically, too, the results of forced feeding on a mixed diet of food containing plenty of protein and an abundance of vitamins are very good. But to the clinician who has watched several severe cases it seems rather that the disease has to run a definite course. Whatever we do, recovery does not promptly follow; it takes time, and repeated recrudescences of the symptoms are frequent.

The infectious theory cannot be denied although all but one of my cases had no relation to influenza, to which has been assigned an etiologic role by Byfeld. Respiratory infections are frequent but these are probably only complications.

It is still not decided whether the disease is a trophoneurosis due to a lesion in the spinal cord or a peripheral neuritis, or whether the skin and mucous membrane changes are caused by some toxic agent. The disease somewhat resembles chronic mercurial poisoning and my first two cases which manifested such pronounced gingivitis suggested this mineral as a cause, since both children had been given considerable calomel at the onset. It is possible that the sore mouth and loose teeth may be only an additional lesion due to the calomel in a child suffering from a trophoneurosis.

But it is idle to speculate. Until the pathological anatomy is known and some bacteriological studies are undertaken not much can be said. My own clinical experience throws some doubt on the deficiency theory.

I have seen and treated about ten cases of this disease. In two or three more the diagnosis was in doubt. Two cases have been reported. I now report three additional typical cases. To these cases I desire to add the clinical history of a few cases the diagnosis of which might be questioned but who all showed the syndrome of skin lesions, muscular weakness and a leucocytosis. I regard them as milder forms of the same disease.

CASE 1. A. K., female, 3 years old. July 15, 1920. First born, normal labor, nursed 17 months without eating anything else. Father and mother healthy. They live in a small city in the eastern part of Illinois.

The present illness began two months ago with a

morbilliform rash, but no fever was observed. Since then an irregular rash appears at intervals and the baby feels very wretched. Cries all the time and will not eat. When she cries long she becomes cyanotic. (Observation proved this to be due to a laryngo spasm.) Shows little inclination to move and objects to being handled. Constipated. No fever has been noticed. During the last two weeks the feet have become red and swollen. The child scratches its body and frets at frequent intervals. She does not sleep well. The diet has been general, but she never has learned to eat properly.

A poorly nourished girl, with a dusky purplish skin. Marked drooling from the mouth is noticed but only slight gingivitis is present. Sixteen teeth look healthy and none are loose. No craniotabes; no Chvostek; no cervical adenitis. Throat normal. The skin is covered with an erythematous rash, not unlike that of a miliaria, and consists of minute papules which cover the back, sides, abdomen and groin. Numerous scratch marks present everywhere.

The feet are swollen, the soles and sides of each foot very much congested and show a few scales. The hands are also somewhat reddened but do not appear swollen.

Heart, lungs and abdominal organs normal. Urine negative. Blood examination: leucocytes, 8,000; lymphocytes, 72; polym., 17; large mon., 10; eosinoph., 1. No Wassermann was made. Weight, 22 lbs.

The tendon reflexes seemed normal. R, Nux vom. and glycerophos. Diet.

July 30. Baby seems better. Has gained three-fourths pound in weight. She still lies in bed and makes no effort to stand and walk. She will not eat and cries when food is offered. Teeth and mouth normal, slight drooling. The bowels have been loose during the last week. The feet are red, toes dusky red and swollen. Some scaling of the sides and plantar surface is present. The rash on the body much better, but a large patch of eczematoid dermatitis is found on the outer side of right thigh. No fever.

Blood examination: Leucocytes 22,500, polym. 59, large monon. 16, lymphocytes 24, eosinoph. 1.

R Iron and arsenic.

August 27. Very much better, but cannot sleep at night. Feet congested and tender. Hands show palms congested. Feels wretched when handled. Still gets cyanotic from an apnea due to laryngo-spasm. Weight, 23 pounds.

Oct. 14. More active. Weight, 24½ pounds. Plays with her toys. Still has poor appetite.

CASE 2. V. P., girl, 11 months old. Seen August 24, 1921. Breast fed baby. Always cries, will not sleep. Constipated. This has continued for two months. Macular rash on abdomen and back. Hands and feet red. Physical examination negative. Deep reflexes diminished; skin reflexes exaggerated. Patient did not return for further examination.

CASE 3. C. B., boy, 18 months old. April 12, 1921. Parents of Dutch and German descent. Live in country town. Family history unimportant, all healthy country people. No tuberculosis, no nervous diseases.

Baby was born at term, weight 7½ pounds. Maternal nursing continued for one year. Since then has been fed on cows' milk, bread and butter, orange, cereals and potatoes. There has been no digestive disturbance, bowels constipated.

Present disease began with an attack of "German measles" two months ago. This improved and the baby had what was diagnosed as scarlet fever two weeks later. He had a convulsion before this

illness. Since this illness he has not been well, suffers from recurrent rashes, sleeplessness and anorexia. Has had a sore mouth. The skin itches and he scratches his body, especially his feet. No fever has been observed since the onset. Cannot sit alone and seems to feel miserable.

Examination: A poorly nourished boy. Skin dusky in color and covered with a papular rash. This is more marked on the back, which is covered by hundreds of small papules. Face almost free from the eruption. Scratch marks all over the abdomen. Several furuncles, one or two large, are present on the right thigh and side of trunk. The hands are swollen and congested. The palms are moist, red and scaly. Feet congested and tender. Uses his lower extremities very feebly; seem almost completely paralyzed. Skin reflexes, except cremasteric, absent. Deep reflexes very feeble or absent entirely. The mouth is healthy, the teeth normal. Considerable drooling is present. Eyes normal. Heart, lungs and abdomen show nothing abnormal. The superficial lymphatic nodes are generally enlarged. The muscles are thin and flabby. While he objects to having his limbs moved, there seems to be considerable anesthesia in the lower extremities. Marked myotonia.

The eye grounds examined by Dr. Costello revealed a mild optic neuritis. No cranial nerve involvement. Pupils dilated and do not react to light nor accommodation. Some photophobia.

Urine negative. Temperature 99 degrees.

Blood examination: Hemoglobin 75 per cent., red cells 3,824,000. Leucocytes 25,200.

Von Pirquet test negative. No Wassermann test was made. Weight 20½ pounds.

R Forced feeding, plenty of protein, mixed cereals, fruits and vegetables.

April 22. Great improvement; rash better.

April 25. Worse again. Will not eat, has a sore mouth, tongue coated; perspires very much; hands scarlet. Ring of erythema around the hair.

May 20. He passed through a severe attack of lobar pneumonia in the last two weeks with high fever (102 degrees to 104 degrees), complete consolidation of right lower lobe. The fever lasted ten days. No fever for one week, but right lower lobe still consolidated.

Reflexes somewhat exaggerated in upper extremity. Right deltoid seems paralyzed. Patellar reflexes absent, lower extremities seem paralyzed. The mouth is sore. The hands and feet are swollen and tender. Rash persists on the body. Leucocytes 22,000. Will not eat.

May 31. Uses his hands well; does not move his feet or legs. Eats a little more. Will not eat dark bread. Weight, 19½ pounds.

June 14. Much better. Rash fading, but the skin is dusky. Moves his legs and feet. Movement began with wiggling his toes, then could draw up his feet, now pushes them down; teeth normal. Weight, 20½ pounds.

October 1. Continued improvement all summer. Runs and walks; eats everything. Fine looking boy.

CASE 4. M. D., female, 1 year old. Seen December 16, 1919. The mother has lost three babies from obscure causes. Family history otherwise negative. The patient is breast fed and will not eat anything else. The baby is drowsy and languid. When six months old she had several vomiting attacks. The mouth of the baby became sore and this has persisted ever since. Bowels constipated; no history of rashes, except the neck and back.

Poorly nourished baby, weight 14½ pounds. A dusky red erythema present around the neck. No rachitic nor scorbutic signs. The mouth is diffusely inflamed and several small ulcers are found on the

buccal surface. Throat normal; all organs normal. Superficial and deep reflexes diminished. No blood examination made. R Diet.

There was rapid improvement. February 18, 1920. Weight 18 pounds. Eczematoid rash on face.

CASE 5. J. W., male, 3 years old. Seen June 1, 1921. Always been healthy; breast fed to 10 months. Well nourished, but does not take a good general diet. He eats mostly white bread and two small glasses of milk daily. He has had no respiratory infections, no sore throat. He complains of pain in legs on standing. Does not want to walk. Irritable and complaining all the time. Seems to be weak and tired. Illness about four weeks' duration. Bowels normal. Poor appetite.

Fairly well nourished boy. He has a pinched facial expression. The hands are very red and perspiring. Mouth healthy, throat normal. Reflexes generally exaggerated. Weight, 30 pounds. Leucocytes 6,500. No rash found on the body. Feet normal.

On a general mixed diet he improved rapidly and seemed well in two months.

CASE 6. A. R., boy, 18 months old. Seen February 22, 1921. The patient was breast fed until ten months old. No illness until six weeks ago. Since then has been suffering from an irregular fever and cough. Has had no digestive disturbance. Has been on general diet—milk, eggs, bread and butter, oranges, few vegetables and potatoes. Lies around and whimpers all day and does not sleep at night.

Examination: Moderately well nourished. Skin somewhat pale and dusky, no eruption. A few coarse rales in the chest, right ear drum inflamed, throat congested. Diagnosis: grippe. Treatment, cough mixture, ear drops.

March 27, 1921. Seemed much better after one week's treatment. Last week lies around, will not walk and seems miserable. Still coughs. Will not eat.

Baby looks miserable. Erythematous rash below the right axilla and behind right ear. Faint erythema on the chest, back and face. Perspiration marked all the time. The hands and feet show increased congestion, the toes somewhat swollen. Ears normal; chest clear; heart normal; abdomen negative; urine negative; leucocytes 9,200. Von Pirquet negative. Reflexes: superficial diminished; deep, exaggerated. R Diet.

April 4. Feels better, walks as if on tacks. Appetite still very poor, has to be forced to eat. Reflexes somewhat exaggerated; no rash. Hands and feet somewhat congested.

Later report: Is doing well, gaining in weight, and walks and runs.

CASE 7. J. F., girl, 8 months old. Seen February 27, 1922. The baby weighed 8 pounds at birth. Was nursed one month, then fed on malted milk, cow's milk and Mellin's food, condensed milk and lately on cow's milk and dextrimaltose. Weight, 13 pounds. Has had frequent attacks of vomiting, no diarrhea, usually constipated. Since one month old the baby has a tendency to rashes. There are two other children in the family, both healthy. Parents healthy.

Present illness began when one month old as an eruption all over the body. For some time has had a sore mouth with considerable salivation. Nine teeth have erupted, one was pulled out. She suffered from bronchitis and otitis for several weeks. Frets all day.

Examination: Poorly nourished infant. Dusky skin. Both ears discharging. Eczematoid dermatitis on the face, scalp and trunk. Considerable desquamation on the trunk. The hands are somewhat congested. Superficial and deep reflexes active every-

where. The upper gums are swollen and congested, but not hemorrhagic. In the lower gums three incisors are crowded together in a spongy mass scarcely resembling a gum. All the teeth were loose, and one had been extracted a few days before.

A few coarse rales were found on auscultating the chest. Heart normal. The liver seemed to be swollen. Leucocytes 12,300.

R Feed. Cod liver oil and malt.

March 10. For ten days the baby seemed to improve, eruption became clearer. Then the eruption became rapidly worse. The head is a solid mass of exudate, the body scaly and has an offensive odor. The gums were about the same.

CASE 8. C. R., girl, 22 months old. March 24, 1922. She has been a healthy girl until this winter. Suffered from several attacks of bronchitis. About four weeks ago she stopped walking and began to lie around and fret. She has suffered from a cough for the last two weeks. Little fever was noticed. No digestive disturbance, no rash. She has a good appetite.

Examination: Well nourished girl. Skin has a good color. Slight rash like prickly-heat in left groin and over buttocks. The hands and feet are not congested nor swollen. She sits up by holding her knees. Cannot walk; holds head to one side. Pupils normal, react to light. Marked myotonia. Reflexes diminished or absent. Patellar reflexes absent. No anesthesia could be made out. No rigidity of neck, no Kernig. No cranial nerve palsies. Heart and lungs normal. Mouth healthy, tonsils congested. Teeth normal. Temperature 100 degrees. Lymph nodes enlarged. Leucocytes 31,000. R Tonics.

April 10. Great improvement. Can stand holding onto a chair. Shows a marked erythema all over the body. Good appetite. No cough; ears normal. Leucocytes 17,000.

This was followed by a gradual and perfect recovery.

CASE 9. D. J., boy, 20 months old. December 5, 1921. Was breast fed baby and since one year old received a mixed diet. Has been very well until two months ago when he became exceedingly restless and had two slight attacks of convulsions. The last week has had a slight diarrhea. R Cereal diet.

December 14. Does not sleep, has no appetite. One large stool a day. Had a toxin-antitoxin injection one month ago. He objects to being handled. He plays only a few minutes, then whines and lies down.

There is no rash on his body. All reflexes seem to be exaggerated. There is no congestion of the feet and hands. General physical examination reveals nothing abnormal. Temperature normal. Von Pirquet negative. Leucocytes 18,600. R Cod liver oil.

January 19. Seems almost well. Sleeps and eats better.

536 N. Taylor.

TUBERCULOSIS OF THE BONES AND JOINTS*

J. EDGAR STEWART, M.D.

ST. LOUIS

Although comparatively inaccessible to direct infection, bones seem peculiarly suscept-

ible to tuberculosis. I have not been able to find statistics from large general clinics comparing the frequency of occurrence of tuberculous infection in the different tissues and organs of the body but I think it can be safely said that serious manifestations of the diseases are found more frequently in the bones than in any other structures except the lungs.

The incidence in childhood is very high, the first signs appearing before the age of fourteen in from 85 to 90 per cent. of cases and about half of all cases have their beginning between the third and fifth year.

ETIOLOGY

The general etiology factors in bone tuberculosis do not differ from those in tuberculosis elsewhere. The supposed inherited tendency or predisposition to the disease has as much (or as little) theoretical application here as in any tuberculous process. The prime factors are: (1) The infection by the tubercle bacillus; (2) in an individual whose resistance is not capable of combating the infection. Either of these may be the predominating factor. The infection may be so overwhelming that normal resistance cannot withstand it, or what is called vital resistance may be so low that the individual is hypersusceptible to infection.

There has been a great deal of discussion about injury as a factor in determining the localization of the infection in a certain bone or joint and a large amount of experimental work has been reported on this point, much of which is contradictory. The clinical fact that a large proportion of bone and joint foci occur in the lower extremities and vertebræ, which are more subject to trauma, is offered in support of the theory. The fact that the patient or parents usually attribute the disability to a definite injury must be discounted, as falls and similar accidents are so frequent, especially in children, that very definite relation to onset of symptoms must be established in order to give it standing as a causal factor. Even if the relation seems definite, the injury may very well be merely the cause of the rapid development of symptoms in a process which is already established. Out of the mass of clinical and experimental evidence in this relation, one point seems to have caught the attention of numerous observers: that slight and perhaps often repeated trauma is much more likely to be a localizing factor than severe injury.

PATHOLOGY

In taking up the pathology of skeletal tuberculosis it seems best to consider it as bone tuberculosis with joint involvement. Ely, in

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a monograph on "Joint Tuberculosis," describes it as a separate lesion, believing that the original focus of infection is often in the synovial membrane. He states that a number of specimens examined by him show no involvement of the bone whatever. Fraser in his monograph also makes this distinction but is evidently influenced to do so by the large proportion of cases of diaphyseal involvement in his series in which joints were not affected. Nichols, on the other hand, made a study of 120 specimens and believes that the cancellous bone is always the seat of primary infection and that synovial tuberculosis is always an extension from the bone. Allison, in a recent clinical and pathologic study of fifty cases, concludes that "there is no warrant, pathologically or clinically, to consider these lesions from the standpoint of contrasted bone and joint involvement. In most instances in this series of 50 cases, joints were involved in the process. In each and every instance there was involvement of bone. . . . I am not sure in what tissue the primary infection took place in all those cases. I am sure that in all of them the bone became the chief seat of the infection."

The numerous connective tissue structures about the ends of the long bones which may become involved in the tuberculous process, behave in a manner which corresponds to the structure involved. In bone the original tubercle develops in the marrow of the cancellous bone and spreads peripherally, forming other tubercles which coalesce and tend to break down in the center. The attempt at repair goes on at the same time with the formation of granulation and later fibrous tissue about the affected area. It may become completely encapsulated and inactive or the tubercles may invade this reparative tissue and progress until other structures are involved.

When the synovia is infected it becomes greatly thickened and the formation of granulation tissue and fibrous tissue which develops may spread over the articular cartilage and form the typical tuberculous panus so frequently seen on opening tuberculous joints.

Ely maintains that the marrow of the cancellous bone and the synovial membrane are the only structures that actually become infected by the tubercle bacillus and that the changes in the other structures are due to interference with their circulation. Certainly all the structures in and immediately about the joint are usually involved in the general process. The cartilage becomes fibrillated or breaks up in areas and is replaced by fibrous tissue. The ligaments undergo a type of gelatinous degeneration in which the entire capsule of the joint becomes involved. The periarticular tissues also become pale and boggy,

giving rise to the old term "white swelling." Abscesses may break through and sinuses form and the part become the seat of secondary infections.

If healing takes place it is by fibrous tissue replacement of the diseased structures, and what is called fibrous ankylosis may result. The tuberculous infection does not necessarily disappear however and may reappear—even after having been quiescent for many years.

SYMPTOMS AND DIAGNOSIS

Bone tuberculosis is essentially a disease of insidious onset and in the vast majority of cases only one articulation is involved. The usual symptoms ascribed to it are pain, restriction of motion, muscle spasm, and muscle atrophy. Although pain is stressed in textbooks as a cardinal symptom, I do not believe it is a prominent early one. Disturbance of function is present from the beginning and may be the only symptom obtainable in getting the history of an early case. It is evidenced on examination by restriction of motion and muscle spasm. The other symptoms, such as night cries, fever, loss of weight, and atrophy of the extremity, are usually present at some stage of the disease, but a diagnosis is often made without any of them being discovered. *Disturbance of function can always be made out.*

It is remarkable that when seen soon after onset of symptoms, patients with bone tuberculosis often look well nourished and even robust and the history is one of previous good health. In such cases a history of tuberculosis in the family is often obtainable. To me these represent the type who have acquired tuberculosis by overwhelming or often repeated infections and in spite of normal resistance.

While bone tuberculosis is essentially insidious in its development of symptoms, a history of acute onset should not eliminate from consideration as possible tuberculosis, any case where disturbance of function in a *single* joint can be demonstrated. In reviewing the histories of cases of tuberculosis of the hip at the St. Louis Children's Hospital I found two cases which started very acutely during the course of acute exanthemata for which they had been admitted to the hospital. No history of previous joint symptoms could be obtained and physical examination on admission was negative in reference to the joints. The supposition would be that these were cases of septic arthritis of pyogenic origin but both were subsequently treated at the hospital and dispensary for several years and ran courses typical of tuberculosis. Any child found to have restriction of motion in a joint and mus-

cle spasm on attempted passive motion, for which a definite cause is not obvious and in whom this disability does not readily disappear with rest, should be suspected of having tuberculosis and a thorough study should be made, preferably in a hospital. Their reaction to Wassermann, complement fixation for tuberculosis and Von Pirquet tests are very helpful and a record of their two-hour temperature, condition and actions asleep and awake are of assistance in arriving at a diagnosis. X-ray examination is most important and even where bone destruction cannot be demonstrated, the degree of bone atrophy, shown by lessened opacity to the X-ray, is often of value in determining the duration of the disability in cases where the history of onset is unreliable.

Non-tuberculous, non-articular infections certainly do occur and are not infrequently diagnosed tuberculosis, but their treatment as tuberculosis until their identity has been proved, can do no harm while the altogether too frequent diagnosis of rheumatism and growing pains in bone tuberculosis and their treatment with medicine by mouth and liniments is responsible for many cases progressing to the stage of abscess and sinus formation and a very much lessened chance of cure with restoration of function.

Tuberculosis of the shaft of the long bone is comparatively rare and I know of no way to distinguish it from pyogenic osteomyelitis except by examination of material removed at operation.

PROGNOSIS

It is very important from the standpoint of obtaining the best possible result in bone tuberculosis that the patient or parents should understand the seriousness and also the chronic nature of the disease. Complications which may occur in spite of proper treatment—abscess formation and active tuberculosis in other parts—should be mentioned and it should be explained that a stiff joint *may* be the ultimate result in a child and is sure to be in an adult if cure is affected. It should be impressed upon them, however, that complete arrest of the disease without gross deformity and with fair function may be accomplished by observing in every minute particular and over a long period of time the rules laid down for their treatment.

An analysis of the cases of tuberculosis of the hip treated at the Children's Hospital and Washington University Dispensary during the last eight years gives some idea of the length of time required for active treatment in disease of this particular articulation and of results obtained. Of seventy-four cases which the records showed to have been under treat-

ment more than six months, twenty-eight were located and examined. Eighteen of these had no active symptoms—no muscle spasm or pain on manipulation. Of these eighteen, two had apparently firm ankylosis in good position and the remaining sixteen had motion varying from a few degrees to almost normal. Of this number, thirteen had been without apparatus of any sort for more than six months and five were still wearing convalescent braces. The average length of time apparatus was worn by these eighteen cases was 32.4 months. Of the seventy-four cases studied, fourteen developed abscesses. In six of these the abscesses had developed at some time before applying at the clinic for treatment and in eight they developed while under treatment by us. Four cases were known to have died, three of tuberculous meningitis and one of general tuberculosis. Stone, reviewing histories of sixty-five patients with vertebral tuberculosis treated over a long period of time at the St. Louis Children's Hospital, found that twenty developed abscesses during the course of the treatment. Six cases died. He found the results much better in cases treated conservatively—with external support—than those treated by ankylosing operations.

TREATMENT

In the general management of patients with bone tuberculosis, the same rules apply as regards rest, fresh air, sunlight, nourishing diet, clean, pleasant surroundings and what is called general hygiene as in patients with pulmonary tuberculosis and are equally as important. The contentedness of the patient should be given as much consideration as is consistent with carrying out these rules. The general wards of the average city hospital are notably bad for these cases and the change in their condition when removed to sanatoria where their special needs are provided for is often remarkable.

Tuberculin as a therapeutic agent still has its warm advocates. Bonine, conducting a large clinic for treatment of bone and joint tuberculosis in New York, uses it routinely and states that, with the technique for administration perfected by his clinic, the duration of the disease is greatly shortened. Klinberg, on the other hand, used the Bonine technique in a series of cases which he considered particularly favorable for its use and concluded that none of the cases were benefited by the use of the tuberculin and that actual harm seemed to have been done in several cases. Most of the large clinics where bone tuberculosis is treated have given the desensitization treatment a more or less thorough trial and have discontinued its use.

There seems to be no question as to the beneficial effect in bone tuberculosis of exposure of the skin to the rays of the sun. The symptoms of activity in the lesion undoubtedly disappear more rapidly under this treatment and the healing of sinuses, especially those of recent development, is hastened remarkably in many cases. A dry, equable climate with a high percentage of sunshine days is most favorable to carrying out this routine but there is scarcely any region in the United States where it cannot be practiced to advantage. At Ridge Farm, the convalescent home of the St. Louis Children's Hospital, heliotherapy is begun in April, part of the body being exposed to the sun for a short period at first until, by the latter part of May or first of June, the entire body can be exposed all day, only being brought under cover during rain. This is continued through October and sometimes through November. Although accurate data on the benefit of this measure alone is not obtainable, the general impression of the men in charge of the cases is that it is of considerable value.

The local condition has been subjected in the past to various procedures more or less radical. Injection of the joints with formalin, bismuth paste and other materials, calculated to arrest the infection and stimulate the process of healing, have been tried with no success whatever. Various operative procedures from simple incision and drainage to excision of the articulating ends of the bone have been employed. Immobilization with external appliances has always played an important part in whatever form of treatment was attempted and in the last few years the choice between operative and palliative measures has become rather sharply divided according to the age of the patient. Children and adolescents whose bones have not attained their full growth respond rather well to immobilization by appliances and do poorly following operative measures. It has, therefore, become more and more common practice to treat children and adolescents by immobilization over long periods of time with external splints and to provide for the treatment of their general condition. Operations in individuals under 15 years of age are reserved, as a rule, for such emergencies as evacuating abscesses and amputation in cases where the local condition is considered a menace to the life of the patient.

It is useless to try to describe the various types of appliances used for immobilization. Plaster of Paris is the most commonly used and is as efficient as any where complete immobilization is desired. Where the vertebrae or the hip is involved the tendency in this country and abroad is distinctly toward treat-

ment by continuous recumbency for a period of two or three years.

In individuals whose bones have attained full growth the tendency in local treatment has been more and more toward radical methods. The treatment by external immobilization has given such uniformly bad results, the disease progressing in most cases under the best fixation, that a great many men now recommend operation as soon as the diagnosis of bone tuberculosis has been made. There can be no question that unsatisfactory and often disastrous results are obtained in many of this type of cases because radical procedure is too long delayed. Operation does not contemplate completely eradicating the infectious process but has as its object the formation of bony ankylosis of the affected parts and the complete elimination of motion so that the process has an opportunity to heal. Considerable confusion on this point seems to exist even among the medical profession and especially concerning operations on the spine for tuberculosis of the vertebrae. These have as their object the formation of bony fusion between adjacent parts of the posterior portion of the vertebrae—the lamanae, the articulating facets or the spinous processes. The fusion should include the diseased vertebrae and at least two vertebrae above and below the disease so that when the fusion has taken place this entire block of vertebrae will move as one piece with no motion whatever between the diseased vertebrae.

In closing I want to emphasize the very great advantage of treating these individuals as patients with a general disease—tuberculosis—and to lay stress on the value of their treatment in hospitals where facilities for the treatment of tuberculosis are especially provided.

University Club Building.

REPORT ON THE EXAMINATION OF MARKET MILK IN ST. LOUIS

MRS. M. G. SEELIG

ST. LOUIS

In order to determine the grade of milk being delivered in the City of St. Louis at the present time an investigation was made by the Citizens' Milk Commission during the month of June, 1922. The bacteriological work was carried out in the laboratories of the Department of Pediatrics of the Washington University School of Medicine.

Samples of milk were collected from wagons during the time of the early morning delivery. The bottles of milk were immediately transferred to iced containers and brought to the

laboratory by automobile and the milk was immediately diluted and plated for the bacterial count. Two counts were made from each sample and the results averaged. A number of examinations were also made from bulk milk delivered to an institution by the City Dairies. Counts were made immediately on the arrival of the can. The technic employed was the standard one recommended by sanitary authorities. Samples were collected daily for two weeks, beginning June 3. Altogether 84 samples from 14 dairies were examined. The following are the results obtained:

Dairy	Date	Bacterial count per c.c.
St. Louis Dairy Co.	6-3-22	85,000
St. Louis Dairy Co.	6-4-22	100,000
St. Louis Dairy Co.	6-5-22	70,000
St. Louis Dairy Co.	6-6-22	270,000
St. Louis Dairy Co.	6-7-22	300,000
St. Louis Dairy Co.	6-8-22	10,000
St. Louis Dairy Co.	6-9-22	30,000
St. Louis Dairy Co.	6-11-22	30,000
St. Louis Dairy Co.	6-12-22	70,000
St. Louis Dairy Co.	6-13-22	40,000
St. Louis Dairy Co.	6-14-22	30,000
St. Louis Dairy Co.	6-15-22	400,000
St. Louis Dairy Co.	6-16-22	100,000
City Dairies	6-3-22	500,000
City Dairies	6-6-22	230,000
City Dairies	6-7-22	925,000

From can delivered to St. Louis institution:

City Dairies	6-11-22	3,700,000
City Dairies	6-12-22	4,000,000
City Dairies	6-13-22	115,000
City Dairies	6-14-22	9,000,000
City Dairies	6-15-22	3,250,000
City Dairies	6-16-22	3,150,000
Highland Dairy Farms.	6-3-22	165,000
Highland Dairy Farms.	6-4-22	420,000
Highland Dairy Farms.	6-5-22	935,000
Highland Dairy Farms.	6-7-22	10,000
Highland Dairy Farms.	6-8-22	570,000
Highland Dairy Farms.	6-10-22	60,000,000
Highland Dairy Farms.	6-12-22	25,000,000
Highland Dairy Farms.	6-13-22	7,900,000
Highland Dairy Farms.	6-14-22	275,000
Pevely Dairy	6-3-22	160,000
Pevely Dairy	6-4-22	105,000
Pevely Dairy	6-5-22	40,000
Pevely Dairy	6-6-22	235,000
Pevely Dairy	6-7-22	475,000
Pevely Dairy	6-8-22	125,000
Pevely Dairy	6-9-22	130,000
Pevely Dairy	6-10-22	280,000
Pevely Dairy	6-11-22	425,000
Pevely Dairy	6-12-22	540,000
Pevely Dairy	6-13-22	450,000
Pevely Dairy	6-14-22	2,750,000
Pevely Dairy	6-16-22	700,000
Jersey Farm	6-4-22	545,000
Jersey Farm	6-5-22	1,155,000
Jersey Farm	6-6-22	130,000
Jersey Farm	6-7-22	4,300,000
Jersey Farm	6-10-22	1,600,000

Dairy	Date	Bacterial count per c.c.
Jersey Farm	6-11-22	6,350,000
Jersey Farm	6-12-22	8,000,000
Jersey Farm	6-13-22	9,650,000
Jersey Farm	6-14-22	14,000,000
Jersey Farm	6-16-22	1,425,000
Missouri Dairy Farm.	6-5-22	20,000
Missouri Dairy Farm.	6-7-22	50,000
Missouri Dairy Farm.	6-8-22	30,000
Missouri Dairy Farm.	6-10-22	250,000
Missouri Dairy Farm.	6-11-22	1,350,000
Missouri Dairy Farm.	6-12-22	900,000
Missouri Dairy Farm.	6-13-22	150,000
Missouri Dairy Farm.	6-16-22	450,000
Swiss Model Dairy.	6-6-22	900,000
Swiss Model Dairy.	6-7-22	46,000,000
Donnell Milk Co.	6-5-22	33,000,000
Donnell Milk Co.	6-7-22	15,350,000
Donnell Milk Co.	6-8-22	26,000,000
Donnell Milk Co.	6-10-22	3,700,000
Donnell Milk Co.	6-12-22	3,715,000
Donnell Milk Co.	6-13-22	400,000
Donnell Milk Co.	6-14-22	2,150,000
Donnell Milk Co.	6-16-22	125,000,000
Quality Dairy Co.	6-3-22	820,000
Quality Dairy Co.	6-4-22	4,100,000
Quality Dairy Co.	6-9-22	235,000
Quality Dairy Co.	6-11-22	510,000
Lindell Dairy Co.	6-9-22	800,000
Lindell Dairy Co.	6-14-22	1,900,000
Lindell Dairy Co.	6-15-22	520,000
Magnolia Dairy Co.	6-11-22	10,650,000
Magnolia Dairy Co.	6-14-22	90,000,000
Aug. Bergjans	6-15-22	550,000
Diamond	6-8-22	900,000
Goldenrod	6-15-22	500,000

The bacterial count of milk is an indication of the degree of care exercised in handling the milk by the producer and by the dairyman. High bacterial count indicates either unclean conditions at the farm, lack of proper icing during transit, improper pasteurization, subsequent contamination as a result of dirty bottles and careless handling or failure of proper refrigeration between the time of pasteurization and delivery. The bacteria may not, in themselves, be harmful but other factors being equal, milk with a high bacterial count is much more likely to cause sickness than milk with a low bacterial count. This has been proven by statistics of many cities.

Practically all large cities have milk ordinances requiring that the bacterial count of milk shall not be excessive. For example, in New York City the ordinance requires that grade "A" milk shall not contain more than 30,000 bacteria per cubic centimeter at the time of delivery; that grade "B" milk shall

not have more than 100,000 bacterial per cubic centimeter at the time of delivery. Grade "C" milk may be sold only for cooking and manufacturing purposes, and must not contain more than 300,000 bacterial per cubic centimeter. Milk containing more than 300,000 bacteria per cubic centimeter is prohibited by law from being sold for any purpose. The ordinances of other large cities are similar to that just mentioned.

It must, of course, be admitted that an occasional sample of milk may become contaminated or may not be kept properly cooled during delivery and that this may be the fault of an individual driver. When the milk from any dairy regularly contains large numbers of bacteria, for example, over 300,000 per cubic centimeter, the assumption is warranted that the milk has not been properly handled, and milk which has not been properly handled may at any time be the source of disease.

With these facts in mind it will be seen that several dairies are delivering a grade of milk which may be considered passable. A considerable number of dairies, however, are delivering milk which is far below the grade that should be considered safe for general use. In general, the consumer buys the milk which he considers the purest. His test for purity usually consists in taste and smell of the milk and the presence or absence of visible dirt. An occasional consumer may visit a dairy in order to see for himself the conditions existing. Most of the dairies whose milk regularly contained a large number of bacteria were small dairies with poor equipment and had a very limited patronage. This is easily explained when we consider that the high number of bacteria found were sufficient to cause definite changes in the taste and odor of the milk. The dairies delivering a higher grade of milk have a much larger patronage. These facts are significant, for it shows that even the average consumer who may have no knowledge of bacteriology or chemistry is often able to select a pure milk. It is also evident that from a purely commercial standpoint that quality pays. It is better business to supply good food than poor food.

This investigation also points very clearly to the fact that the present milk ordinance of St. Louis is inadequate and that a large amount of the milk sold in St. Louis does not comply at all with the ordinance.

[Since the report was compiled the Board of Aldermen has passed an ordinance which will enable St. Louis to control the milk supply far more effectually than was possible under the old ordinance. See Editorial.—Ed.]

CONTROL OF COMMUNICABLE DISEASE.—Inadequate control of the communicable diseases of childhood,

says Allan J. McLaughlin, Washington, D. C. (*Journal A. M. A.*, Aug. 20, 1921), is accentuated by certain basic defects in local health organizations. These are, chiefly, failure to co-ordinate and utilize unofficial volunteer agencies, and failure to develop a community spirit and to secure the hearty support of the individual citizen. Unofficial agencies which should be the most potent auxiliaries of the health department are operating in many instances entirely independently of the officials, and often without proper knowledge of, or consideration for, their sister volunteer agencies. The failure to secure a community spirit is related to the failure to utilize properly the unofficial agencies. If proper co-ordination of all volunteer auxiliaries is secured, the development of a strong community spirit is not difficult. Once the community spirit is developed by means of real health centers, the securing of support of a large majority of the individual citizens is within reach. We have been clamoring for better reporting by physicians, and this is a justifiable demand, but even if physicians reported 100 per cent. of cases seen, we should still be far from adequate control in these diseases. A large percentage of the cases of communicable diseases of childhood are not seen by physicians, or seen so late that most of the damage is done. School inspection and the co-operation of intelligent, trained teachers will augment the number of cases brought under early control, but the great need is for the development of sincere public-spirited support by the parents themselves. This can never be achieved by the exhibition of police power, but education and an appeal to both civic pride and individual self-respect will be ultimately successful in getting parents to report cases voluntarily. The biggest step forward will be achieved when the parents voluntarily will isolate children and report, pending diagnosis, when the symptoms are indefinite, but present a sudden deviation from normal health.

SMOKING IN PULMONARY TUBERCULOSIS.—The circulatory stimulation of tobacco to some patients is decidedly advantageous says E. A. Duncan, El Paso, Texas (*Journal A. M. A.*, Aug. 13, 1921). One patient stated that smoking caused his temperature to rise. Investigation verified his assertion. In habitual smokers tobacco increases pulse rate and, to a certain extent, the blood pressure. As a result of this circulatory stimulation, there occurs an increase in the movement of the blood which is shared by the pulmonary circulation. In this respect, the effect of smoking is analogous to that of exercise. It is obvious that this increased flow of blood through the lungs can only favor the access of toxins to the circulation, certainly undesirable if sufficient to cause a rise in temperature. It is also evident from the foregoing that smoking should be stopped by those patients with bloody expectoration or recurrent hemorrhages. This effect of tobacco does not occur in every individual. Some patients may smoke without ill effect, but in any case in which the question arises whether or not smoking is inadvisable, decision can be made only by observation of the effect of tobacco on that particular individual. In other words, the effect of smoking deserves investigation in every case.

AMEBIASIS OF BONES.—Critical morphologic evidence is presented by Charles A. Kofoed and Olive Swezy, Berkeley, Calif. (*Journal A. M. A.*, May 27, 1922), of the identity of certain of the ameboid cells in the bone lesions of arthritis deformans of Ely's nonbacterial type with *Endameba dysenteriae* of human intestinal amebiasis.

THE JOURNAL

OF THE

Missouri State Medical Association

JULY, 1922.

EDITORIALS

"THE NEED OF COUNTRY DOCTORS"

Under the above caption the St. Joseph *News-Press* laments because we did not offer a solution of a "very serious problem"—the passing of the country doctor—during the session of our annual meeting at Jefferson City. The editor of the *News-Press* says:

We have examined the agenda of the Missouri State Medical Association, now in session at Jefferson City, but fail to find anything bearing even remotely on a very serious problem having to do with the medical profession—that is, the dearth of doctors in the rural districts. Governor Hyde has referred to this several times in public addresses and state papers, and medical publications are giving it attention, for the condition it seems is by no means peculiar to Missouri. It is general throughout the country.

A generation ago there was in Missouri a doctor to every township, on an average. Now the rural county may consider itself lucky if it has even one resident physician outside the county seat. The explanation is that doctors, in common with people in other walks of life, have proved susceptible to the lure of city and town. In the country practice is difficult. There are night calls, and long rides in all weathers over rough, muddy roads. Financial rewards are small; often collections are slow. In town the doctor gets adequate fees, good streets and short trips. The typical town doctor is prosperous. He has learned to provide for his future, in which respect he is in striking contrast to the old time practitioner, who, an exchange enthusiastically avers, "has done more to ennoble his profession and make it useful to humanity than all the illustrious specialists put together."

This may or may not be true, but the fact remains that medical service is a necessity of life, and something should be done to encourage physicians to remain in the village and small country town. In some states farm organizations have grappled with the problem and are planning to provide a home and hospital for a doctor in every rural community. We trust that by the time the Missouri State Medical Association meets in its next annual convention it will have some solution to offer.

The above editorial is one that arrests the earnest attention of all students of political economics and of public health problems. That the question did not particularly interest the Missouri State Medical Association in its annual meeting at Jefferson City last May will not occasion surprise to those who recall that this is a scientific association and questions of a commercial, economic or legal nature are

left to its House of Delegates. The doctor comes to the annual meeting to discuss the treatment of disease, the nature of pathological processes, and the methods of teaching medicine, using the term in its broadest sense.

The House of Delegates did consider the matter of the lack of doctors, and because we especially desire our governor and the St. Joseph *News-Press*, and all other state officials and all other newspapers to be with our Association in helping discard the useless, the false and the superstitious in relation to health and disease we present our side of the question.

There is no shortage of physicians in the rural districts. There are few overworked country doctors. There are fewer sick and dead people than ever before. This is the new order of things. It seems to have come to stay. The only ones who are deploring the condition are: first, the owner of the medical school who proposes to educate students quickly and cheaply and in doing so has clashed with accepted standards; second, those employers of doctors who mistake abundance of service for adequate service—who prefer to have ignorant and incompetent help in abundance if it is cheaper than competent help at some outlay of time or trouble.

The *News-Press* is right. A generation ago there *was* a doctor to every township. He went to medical school one term of six months. There was also a church to every schoolhouse and a blacksmith to every cross-road and a teacher to every district. Then, four miles an hour as a rate of travel was standard; it was often two miles an hour; it was done by horse or afoot. Now twenty miles is standard; it is done with a motor. The blacksmith has been displaced by the tire repairman and the machine shop. The church people gather in the towns on Sunday, whirling away five, ten, and twenty miles to worship and back to their homes. The schools are united into union districts where better teachers are higher paid. The doctor now requires twelve years after grade school to do what his grandfather, and often his father, did in one term of six months. The doctor today has his automobile and goes twenty miles where his predecessor could go four, and more than that, night finds him as well equipped with transportation as in the morning. No tired horses after a few hours of driving; only a motor needing water, gasoline and oil and ready for another hundred miles between early supper and late bedtime. It is not too much to say that the physician's radius is five times what it was a generation ago. Furthermore, a generation ago there were no trained nurses. Now every serious case has one of some degree, thus enormously

increasing the doctor's availability. And still more, the rural telephone has become so common and so well distributed that a certain portion of every physician's work is done without visiting his patient at all.

The religious press has explained at some length the passing of the country preacher. Who will now sing the requiem of the country blacksmith or grieve for the twenty-five dollar a month school teacher? When our governor and our press bemoan the passing of the old country doctor, they must remember that it is the new order of things that has changed him. He is not gone; he has but moved to the county seat. Then there was a livery stable in every hamlet and village. A new order of things has displaced them and they are gone.

Let us compare the situation with that of the rural school. The loudest opponent of the new school system was the man who said: "We want our little schools; we like our neighborhood government. What if we cannot pay but \$200 a year for fuel, light, teacher and all expenses of educating our group of children! We do not want it changed; we like the old order." These arguments have not appealed to the press, nor to our governor, nor to the state school system, and they do not appeal to those who favor better medical care of our people.

The people demanded blood tests, serum reactions, laboratory reports, X-ray pictures, and the "doctor in every township" could not furnish them, so the people left him if he did not leave his people.

There is so much less sickness than formerly. Clean food, pure water, and fly screens have conquered summer diseases. There are no more dysenteries where formerly there were thousands, and there are almost no typhoid fevers. A generation ago these seasonal diseases kept the doctor busy all day and all night in "every township." Fresh air, vaccines, care of the teeth and sensible open dressing is doing the same thing to respiratory diseases. They are disappearing. The country doctor confined to a township with a little satchel, no nurse and no laboratory, would starve speedily and be buried pittingly by the people who are said to be demanding him back again. The press should help us keep out incompetent doctors and to refuse state licenses to pretenders and fakers. What we need in Missouri is intelligent assistance by our lawmakers to help us prevent infectious diseases. The lawyers, real estate men and tradesmen who make up our legislature should take counsel with those who know.

We do not need more doctors; we do not need special healers nor special laws to protect them; we do not need doctors turned out

faster. We need less disease, less infection, fewer prostitutes, fewer epidemics. And we will get them by teaching our doctors and our nurses what all the great colleges of America, England, France, Germany and other nations have found essential—not what a few owners of the commercial type of college may say is needed. When our doctors are educated we will give them clean, honestly conducted hospitals in each county seat, and good roads for their automobiles twelve months of the year, and free access to laboratories where real facts may be learned and applied.

There is no shortage of doctors—fewer may be needed in the near future if our legislature will be careful whom it licenses to treat sick people.

While it is possible that there may be a few isolated communities where the country doctor must grapple with the problem of an insufficient number of physicians nearby, the truth of this argument has been substantiated by numerous visits and inquiries by the writer in all parts of Missouri. Even those isolated physicians could increase their usefulness to the people if they could obtain a nurse and a trained assistant, but will the people needing that sort of help for their country doctor support such an outlay?

PROBLEM OF THE MENTAL DEFECTIVE IN MISSOURI

The Missouri mental deficiency survey, conducted by the National Committee for Mental Hygiene by invitation of Governor Gardner, was completed in March, 1921. The report, which has just been issued as a Bulletin of the State Board of Charities, is quite complete, and Dr. Thomas H. Haines, who directed the survey, has given us very practical suggestions.

In summing up the report it is well to give Dr. Haines' definition of feeble-mindedness, viz.: "When a child is diagnosed as being a mental defective, we mean that he is so poorly endowed in intelligence and learning capacity, either on account of conditions present at birth or of conditions induced by disease in his very early years, that he will not be able to develop a capacity to manage himself and his affairs with prudence and with safety to himself and others."

The survey consisted in taking "cross-sections" of school populations in various parts of the state, chiefly public schools, and of examining the population of orphan homes, places of detention, and correctional homes, by means of "group tests," much as they were made in the army by the psychological department. Those falling below a certain grade in intelligence were individually tested.

An outstanding feature of the report is that mental deficiency was found in the public schools of Missouri ranging from 2.4 per cent. to 27.1 per cent., and that in addition to the defective in intelligence there are a considerable number of nervous and psychopathic children. Of 4,984 children examined, a general average of 6.4 per cent. was found to fit the definition given above.

Although we have by law provided for the special instruction of these children where ten or more are found within an area enabling them to attend a special school, there are, outside of St. Louis and Kansas City, no facilities for identification except by their school grades.

Dr. Haines recommends the organization in the department of the State Superintendent of Public Schools, of a traveling clinic for the analysis of mental conditions: not merely ascertaining mental levels but determining the emotional, volitional and instinctive bases of conduct.

For defectives requiring institutional care, it is recommended that the Colony at Marshall be enlarged during the next five years to accommodate 2,500 persons. Many of the feeble-minded may, under supervision, especially after a period of training, live in the community. Statutory provision for the supervision of defectives in the community under the direction of the State Psychiatrist is recommended.

It is recommended that clinics in connection with all of the State Hospitals and with the Colony at Marshall be organized, and that if the work grows too large for the State Psychiatrist that a Commissioner of Mental Hygiene be appointed whose duty shall be to correlate all the agencies for the identification, training, and custody of defectives.

It is recommended that there be organized clinics with consultant psychiatrists in charge for the Missouri Penitentiary, the Missouri Reformatory, and each of the correctional schools of the state and of St. Louis, and *that similar clinical facilities be furnished for criminal courts and juvenile courts* to make careful mental analysis of the characters of those charged with offenses. The latter part of this recommendation is now being put into effect in St. Louis, where the "Commonwealth Fund" is financing a group in the Juvenile Court.

A law providing for the diagnosis, commitment, training and custody, and the supervision of the feeble-minded in the community is recommended, and a discussion of what should be the elements of this law is given. One of the suggestions of the report has already been adopted, namely, the forbidding of the marriage of defectives.

When the gravity of the problems involved is generally recognized, as it has come to be in some of the older states, we shall as a matter of course adopt most of the suggestions offered in this report. We shall otherwise be so pestered by the annoyances and burdens thrown upon the community in dependency, immorality, crime and pauperism of the steadily increasing numbers of these half-witted folk, that we shall have to "sit up and take notice" or go into bankruptcy.

NEUROPSYCHIATRIC PROBLEMS WITH DISABLED VETERANS

As everyone knows there has grown out of the late war thousands of disabling conditions acting to impair in greater or lesser degree the economic efficiency and independence of ex-service men. To minister to their needs there has been created by the Federal Government the United States Veterans' Bureau with its fourteen district offices, each embracing certain states of the Union. The functions of the U. S. Veterans' Bureau are mainly three: First, to provide adequate medical care and treatment for the disabled ex-service man; second, to afford them, where eligible and feasible, vocational training leading to their industrial rehabilitation; and, third, to adequately compensate in money those for whom treatment has not resulted in recovery and where the disability is such that vocational training is not feasible. As will be seen the U. S. V. B. has been given the responsibility towards the disabled ex-service man which was formerly divided between the U. S. Public Health Service, the Bureau of War Risk Insurance and the Federal Board for Vocational Education. To discharge this enormous responsibility a large organization has to be built up, each district being practically in charge of its own problems, working in decentralized manner from the Central Office in Washington. This organization includes clinics, and hospitals with their social service allies, special schools and supervision of universities and colleges wherein training is carried on. Our state comes within the territory known as the Ninth District, including Missouri, Kansas, Iowa and Nebraska. The district headquarters, with Mr. M. E. Head as District Manager, are located at 6801 Delmar Boulevard, St. Louis. There are fourteen sub-district offices located at St. Louis, Kansas City, Springfield, Poplar Bluff, and Chillicothe, Missouri; Wichita, Salina and Topeka, Kansas; Des Moines, Cedar Rapids, Waterloo and Fort Dodge, Iowa. At St. Louis and Kansas City (Mo.), Colfax and Knoxville (Iowa), are large hospitals; and at

St. Louis, Kansas City, Omaha and Des Moines large out-patient clinics. Any one of these branches will gladly supply information concerning the Bureau's purposes and work as will the District Manager to any interested persons.

As will be seen by the foregoing brief setting forth of the Bureau machinery, the work deals with disabilities resulting from injury or disease and is therefore fundamentally medical. It has been noted with some alarm that a large portion, fully one-third, of all disabilities are of nervous or mental type—neuropsychiatric. The alarm and concern arises from the difficulty inherent in the handling of men with disorders of the nervous system functions. To accomplish things it is primarily essential that there be a personnel of adequately trained neuropsychiatrists and it has been brought to the editor's attention that the Bureau experiences considerable difficulty in obtaining the services of such men. From time to time there are opportunities open in the neuropsychiatric section of the Bureau for men with the proper training to work as special examiners or on a part or full time basis. The work itself is of vast interest, opening up as it does a practically untried field in the application of neuropsychiatry to the solution of industrial vocational and economic problems. Neuropsychiatrists are particularly desired at this time and any with the training are requested if interested to communicate directly with the District Manager, Mr. M. E. Head, 6801 Delmar Boulevard, St. Louis, for further information.

ST. LOUIS AGAIN FOSTERS PUBLIC HEALTH

One of the St. Louis daily newspapers heralds each day, in bold faced type, neatly boxed, a new reason for the greatness of St. Louis. It might be well to furnish as an additional reason the fact that the present city administration, with exemplary vision, has fostered public health.

The citizens of St. Louis may congratulate themselves on the fact that within less than two months, two signally important bills have been passed by the honorable Board of Aldermen. One of these bills, already noted in our columns, safeguards public health by legalizing the study of disease on impounded animals. The other bill when properly enforced will not only guarantee for St. Louis a safe milk supply, but also will hearten other communities to labor towards the same end.

Just two years ago Mrs. M. G. Seelig, of St. Louis, organized the Citizens' Milk Committee and started the agitation for pure milk.

By arousing public sentiment through the various civic avenues open to her and through the cordial support of an intelligent Board of Aldermen she was able to secure this important legislation in record breaking time.

The organized medical profession is gratified, not only because it served as one of the agencies on which the Citizens' Milk Committee relied, but also because the Committee in its wisdom made our leading medical schools the center of their support on all matters pertaining to milk in its public health aspect.

The bacterial counts recently made by the Citizens' Milk Committee on milk vended by fourteen St. Louis dairies and published in the daily press, demonstrates most forcibly that the enactment of the statute came none too soon.

St. Louis may rest assured that if the righteous force of public opinion insists on the enforcement of the milk statute we shall have a reliable milk supply, even though the ultimate source of the raw milk be as far away as Wisconsin.

On another page¹ we publish the report of the investigation by the Committee.

1. See page 303.

NEWS NOTES

DR. OLA PUTNAM, of Marceline, has completed plans for the erection of a hospital in Marceline, to cost about \$25,000.

DR. E. T. HORNBECK, of Hannibal, is taking an extended course in post-graduate work in the hospitals and clinics of several eastern cities.

DR. HENRY L. WOLFNER, of St. Louis, who has been a member of the Board of Education for the past nine years, has resigned the position.

DR. H. L. KERR, of Crane, left for California to be gone about a month after attending the meeting of the American Medical Association in St. Louis.

DR. E. A. GREAVES, of Kansas City, has been appointed physician at the Municipal Farm and Dr. John Deveney has been appointed dentist for the same institution.

DR. FREDERICK P. GAY, professor of pathology, University of California, has been

elected chairman of the division of medical science of the National Research Council.

DR. J. L. EATON, of Bismarck, former superintendent of State Hospital No. 4 at Farmington, has announced his candidacy for congressman to represent the Thirteenth District.

DR. FRANK HURWITT, of Kansas City, who has been connected with the Health Department since 1912, has resigned and accepted a position as physician for the Welfare Board.

OVER four hundred physicians, members of the St. Louis Medical Society, and their families attended the performance of Victor Herbert's Operetta, "Sweethearts," at the Municipal Open Air Theater, on "St. Louis Medical Society" night, May 13.

DR. JOHN D. PORTERFIELD, JR., of Cape Girardeau, was seriously injured May 10 when his automobile collided with a street car. He suffered a fracture of the sternum and two ribs, lacerations of the head and face and severe contusions of the legs.

DR. C. H. WALLACE, St. Joseph, has been appointed a member of the Welfare Board by Mayor McNinch to succeed Dr. Daniel Morton who declined reappointment. Dr. Morton has been a member of the board since its organization nine years ago.

DR. ED. S. SMITH, of Macon, is taking a special course in diseases of children at Harvard University. Dr. Smith is a member of the Medical Reserve Corps, U. S. A., and is one of twenty officers sent to Harvard for special courses. He expects to be there all summer.

DR. J. W. BOGER, of Sedalia, has been appointed Pettis County Health Officer and will be in charge of a county health unit established through the co-operation of the Red Cross, the Rockefeller Foundation, the state and federal governments, and the county court of Pettis County.

DR. M. O. BIGGS, Superintendent of State Hospital No. 1, Fulton, delivered a lecture on psychology to the sociology class of Westminster College at the hospital May 8. About 110 students from the college heard the lecture which was made more interesting by the demonstration of some cases.

A COMPLETE X-ray apparatus has been installed in the Audrain County Hospital at Mex-

ico. The machine and the laboratory will be in charge of Dr. C. A. Tedrick who plans a special demonstration of the usefulness of these aids in the treatment of the sick, and the citizens of the county will be invited to attend.

DR. L. R. WEIR, formerly of Pattonsburg, Daviess County, sailed for Barcelona, Spain, early in July where he will continue his studies in ophthalmology. Dr. Weir has spent the past two years in New York studying diseases of the eye, ear, nose and throat. He expects to be in Europe a year and then take up practice in St. Louis.

DR. F. L. OGILVIE, of Blodgett, is a candidate for Representative from Scott County. Dr. Ogilvie has been a member of our Association for many years and if elected will bring to the legislature sound judgment upon all public health questions, the result of many years of practice, and an intelligent conception of all laws affecting the interests of the people in his district. Dr. Ogilvie is a graduate of the St. Louis University Medical School.

MAYOR KIEL, of St. Louis, has removed the Humane Society from control of the dog pound because the Humane Society declined to deliver impounded dogs to the medical schools for scientific purposes, as authorized by an ordinance passed by the Board of Aldermen recently. The Humane Society has been instrumental in having a suit filed against the city to restrain the city officers from selling the dogs to medical schools on the ground that the ordinance is unconstitutional.

DR. J. E. JORDAN, of Columbia, was the recipient of a gold watch presented to him by the members of the Boone County Medical Society and the physicians of the county recently, as a mark of appreciation of his excellent service as secretary of the Society and staff of the Boone County Hospital. Dr. Jordan has given up active practice on account of a physical disability suffered in an automobile accident last fall. He was secretary of the Boone County Medical Society for many years. He will reside in Kansas City in the future.

THE Springfield (Mo.) court of appeals has affirmed the finding of the lower court that an osteopath is not a physician or surgeon within the meaning of the law governing the practice of medicine and surgery. The court of appeals quoted an opinion of the su-

preme court of Missouri as follows: "Osteopaths are not physicians or surgeons in any of the departments of medicine or surgery, but may cure or relieve any disease of the human body according to the system, method or science as taught by the American School of Osteopathy at Kirksville or any other legally chartered and regularly conducted school of osteopathy."

THIS is the time to sort out your bad and doubtful accounts and turn them over to a reliable collection agency for attention. Experience in the past has made most physicians wary of the general run of collection agencies but experience has also proved that the Physicians Adjusting Association, of Kansas City, Mo., whose advertisement has appeared in this JOURNAL for several years, is an exception to the rule. This company not only succeeds in collecting old and doubtful accounts and sends the money to the physician but also does the work in the least objectionable manner. In this issue the company is presenting their proposition in a full page advertisement to which we invite the attention of our readers.

DR. J. N. McCORMACK, of Louisville, Ky., died recently at the age of 76 years. At the recent meeting of the American Medical Association in St. Louis resolutions were adopted in memory of Dr. McCormack, who had endeared himself to thousands of physicians throughout the country. During the period of reorganization of the American Medical Association from 1900 to 1910 Dr. McCormack traveled over the entire country in the interest of the Association addressing the members in all sections and successfully urging the plans for bringing the profession into a solid, compact, organized body, the benefits of which are so manifest today not only for physicians but as a protecting influence for the people.

THE Committee on Public Welfare of the Board of Aldermen, St. Louis, and the Director of Public Welfare, Mr. Nelson Cunliff, have returned from an inspection of the milk distribution in the principal cities of the East. As a result the Board of Aldermen will probably pass a bill that has been under consideration for several months governing the milk supply of St. Louis, amended so that the supply of milk from territory outside of Missouri shall meet the standard established for Missouri dairymen. The ordinance provides for the pasteurization of all milk, but certified milk, which is produced under extremely rigid hygienic precautions, will probably be exempted from the pasteurization requirement.

ONE of the useful activities of the Propaganda Department of the *Journal of the American Medical Association* is found in the issuance of pamphlets descriptive of the various quack methods of dealing with certain conditions. For instance, there has recently been published and ready for distribution by the Propaganda Department pamphlets on "Female Weakness," "Obesity Cures," "Epilepsy Cures and Treatments," "The Nostrum and the Public Health and Truth in Advertising Drug Products." Each of these pamphlets describes with much detail and with graphic examples the devious methods used to trap the unwary and credulous person into purchasing the so-called cures. Every physician should have a supply of these pamphlets in his office for distribution among his patients so that they may learn the truth concerning many of the widely advertised "cures" for this, that and the other common complaint.

FROM *Science* we learn that eleven of the twelve members of the committee of the League of Nations on International Co-operation in Intellectual Work have been selected. These include in the sciences Madame Curie; Professor Albert Einstein; Miss Bonnevie, professor of zoology at Christiana; Dr. A. De Castro, of the medical faculty of the University of Rio de Janeiro, and Dr. L. De Torres Quevedo, director of the electro-medical laboratory of Madrid. The commission will include a consideration of the three following topics: (1) possibilities of encouraging and improving the organization of scientific research by means of congresses, commissions and institutes; (2) the international relations between universities and means for the organization of an international bureau of universities, and possibly an international university; (3) international organization of scientific bibliography, and exchange of scientific publications.

DR. E. V. McCOLLUM, the principal speaker at the Holstein Friesian Convention at Kansas City, June 7, was tendered a luncheon at the Kansas City Club by the Kansas City Medical Milk Commission. Other guests were Professor A. C. Ragsdale of the University of Missouri; Professor J. C. McDowell, of the Dairy Division, U. S. Dept. of Agriculture; Professor Hughes, of Kansas Agricultural College; Mr. M. O. Maughn, of the National Dairy Council, Chicago; Mr. Gates, Food and Dairy Commissioner, and Mr. Fred Wolferman, of Kansas City. The producers of certified milk, Messrs. Conway Holmes, Overland Farm; T. T. Adams, of Blue Springs, and Col. Copp, of Liberty, were also present.

The members of the Commission present were Dr. George C. Mosher, president; Dr. A. W. McAlester, Jr., vice president; Dr. Frank C. Neff, secretary; Dr. Edwin H. Schorer, Dr. George F. Pendleton, Dr. Buford G. Hamilton, Dr. H. C. Berger and Dr. H. L. Dwyer.

OBITUARY

C. LESTER HALL, M.D.

In the death of Dr. C. Lester Hall of Kansas City, June 10, 1922, the medical profession of Missouri lost one of its most brilliant leaders, a man who for fifty-five years has inspired others to higher and nobler ideals in the practice of medicine and in good citizenship. Dr. Hall was one of the most revered and beloved members of our profession; his memory will live always in the annals of our Association for the many noble deeds and sacrifices he made for the advancement of scientific medicine and the cause of medical organization. While attending the meeting of the American Medical Association at St. Louis he was stricken with cerebral hemorrhage on Saturday, May 27, just after the adjournment of the session and was transported to his home in Kansas City the next day where he lingered until June 10.

Dr. Hall graduated from the Jefferson Medical College of Philadelphia in 1867 and at once entered practice in Saline County, where he was born. After practicing at Marshall for a number of years he moved to Kansas City where he soon became a leading figure in the medical life of that city and maintained that leadership during his entire career. As a testimonial of the esteem and affection in which he was held by his colleagues, a banquet in his honor was tendered him at Kansas City on the completion of his fiftieth year in practice.

Dr. Hall filled many official positions in the work of the county and state medical associations and was elected president of the State Association in 1895. He was a teacher of medicine for many years being professor of diseases of women and president of the board of directors of the Medico-Chirurgical College of Kansas City, and professor of diseases of women in the Kansas City Post-Graduate Medical School and Hospital, and for several years professor of gynecology at the University of Kansas School of Medicine. His father, Dr. Matt W. Hall, was one of the pioneer physicians of Saline County. A son, Dr. D. Walton Hall, is in active practice in Kansas City, and two brothers, John R., and Thomas B., are physicians at Marshall, Mo., all of them members of our Association. Another brother, Mr.

Matt W. Hall, of Marshall, was a member of the legislature when our Association advocated the passage of the first medical practice act and Mr. Hall took charge of the bill which was passed.

REGINALD H. MEADE, M.D.

Dr. R. H. Meade, of Kansas City, a graduate of the Beaumont Hospital Medical College, St. Louis, 1896, a member of the Jackson County Medical Society and Fellow of the American Medical Association, died unexpectedly at his home March 10, aged 49 years. In his death the profession of Kansas City and of the state loses one of its most brilliant followers, a man who had done many things to show that he possessed unusual talent in the science of medicine. In recording some of his achievements we can do no better than quote from an account of his life written by Dr. E. H. Skinner in the *Medical Herald*, viz.:

The extensive friendships of Dr. Meade and the sincerity of the mourning are pre-eminent in this record of his passing. It is doubtful if any physician ever had more contacts. In every contact, whether medical, civic or friendly, Dr. Meade became a constructive factor. For instance, at his death he was president of the Medical Veterans of the 89th Division; Chef de Guerre of the Societe des 40 Hommes et 8 Chevaux; vice commander of the American Legion Bland Post and Medical Consultant to the Veterans' Bureau at Kansas City. It surely takes a man of wonderful friendliness, professional ability and executive capacity to achieve these honors of trust and leadership.

He practiced at Great Bend, Kansas, for fifteen years, where he not only attained the limits of professional practice, but entered into civic activities and fraternal orders quite generously. He took all the degrees in Masonry to the limits of the York and Scottish Rites and the Shrine. He was an exalted ruler of the Elks at Great Bend.

His medical life was equally full of attainment. He enjoyed a splendid personal following and accomplished much surgery. He was upon the staff of four leading Kansas City hospitals: St. Luke's, St. Joseph's, St. Margaret's and Kansas City General. He was consultant to the Veterans' Bureau and to the local Veterans' Hospital No. 11. He could accomplish so much in each day's time that these places saw him at work constantly.

Medical societies found a champion in Dr. Meade. Naturally he became a member of the local, state and American Medical Associations. He was an early Fellow of the American College of Surgeons. He was a delegate to the Missouri State Association from Jackson County. But he will be known

better locally as a Past President of the Kansas City Academy of Medicine, a position of no mean honor in a society of professional attainment and limited membership. He was a member of the two sectional societies which focus at Kansas City, the Medical Society of the Southwest and the Medical Society of the Missouri Valley.

Dr. Meade's war service record was meritorious. He went to the Fort Riley Officers' School and became Regimental Surgeon of the 354th Infantry with rank as Major. He was with the 89th Division throughout the St. Mihiel, Meuse and Argonne offenses and was cited for meritorious service. He was gassed upon September 26, 1918, but remained on duty until after the Armistice.

Only a few knew of the diabetic cloud which constantly overshadowed Dr. Meade's daily existence. In spite of this constant menace he led an active and eventful career, perhaps more so than any other physician in our community. These are wonderful things to engage our admiration in his life. This persistent ambition in the face of a physical handicap is of worthy note.

Dr. Meade leaves a wife and three children. His oldest son was overseas with Base Hospital No. 28.

The funeral was from St. George's Episcopal Church, Kansas City, upon Sunday, March 12, 1922. Although the attendance was limited to his friends, the church would not hold the hosts. It was not a military funeral but a simple service of great sincerity and devotion. The Bland Post and The 40 Hommes' Voiture had a memorial service with addresses upon March 14, 1922.

And thus do we record the passing of a splendid physician, a generous friend, a devoted father and soldierly citizen.

MCDOWELL BOTTS, M.D.

Dr. McDowell Botts, Mexico, Mo., a graduate of the Missouri Medical College, 1899, now Washington University Medical School, a member of the Audrain County Medical Society, died at Lake City, Florida, April 17, from the effects of X-ray burns sustained in the early days of the development of the Roentgen ray, aged 47 years. The early part of his active career was spent in the Frisco Hospitals where he became interested in X-ray work and received the burns which finally resulted in his death. He was commissioned a Captain in the Medical Corps of the U. S. Army early in 1918 and was still a member of the Medical Corps at the time of his death, but had been on a leave of absence for several months.

WILLIAM G. SAFFORD, M.D.

Dr. Wm. G. Safford, of Tarkio, a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, 1878, a member of the Atchison County Medical Society and Councilor for the First District of the State Medical Association, died at his home March 12, aged 72 years. Thrown upon his own resources when a boy Dr. Safford acquired the necessary education through diligence and study outside of working hours to prepare himself for entering the medical school. He practiced at Westboro for a short time after his graduation then moved to Tarkio. He served two terms as mayor of Tarkio and was local surgeon for the Burlington Railroad for twenty years.

THOMAS B. COOK, M.D.

Dr. Thomas B. Cook, of Rayville, a graduate of the Kentucky School of Medicine, 1883, a member and president of Ray County Medical Society, representative from Ray County in the state legislature in three different years, died at his home April 30, from pneumonia, aged 67 years. Dr. Cook was a native of Ray County and grew up on the farm of his parents, who were pioneers in the state. He was one of the most influential citizens in his community and was prominently identified with all movements looking to the improvement of the health of the community, a practitioner who possessed the esteem and confidence of all physicians who knew him, a man whose influence upon people in all walks of life was always for good. He was a delegate to the State Medical Association on several occasions and had served as mayor of Rayville for a number of years.

TYRE H. DINWIDDIE, M.D.

Dr. Tyre H. Dinwiddie, of Higbee, a graduate of the Missouri Medical College, 1879, now Washington University Medical School, a member of Howard County Medical Society, died suddenly at his home May 21, 1922, from cerebral hemorrhage, aged 64 years. In the passing of Dr. Dinwiddie Howard County loses one of its most prominent citizens and the medical profession is deprived of the support and influence of a member who was an exemplar of the highest ideals of the profession. He was vice president of the Higbee Savings Bank and a partner of Dr. C. F. Burkhalter in the management of a drug store.

WILLIAM M. SMITH, M.D.

Dr. Wm. M. Smith, of Springfield, a graduate of Rush Medical College, 1870, and a mem-

ber of the Greene County Medical Society, died at his home April 24, aged 80 years. Before locating in Springfield he had practiced in several towns in Illinois and at Beadle, S. D.

HENRY H. SUMMA, M.D.

Dr. Henry H. Summa, a member of the St. Louis Medical Society and of the American Medical Association, died suddenly at his winter home in West Palm Beach, Fla., from heart disease, April 8, 1922. His remains were brought to St. Louis and the funeral held Saturday, April 15. A considerable number of his fellow members of the Medical Society were in attendance.

Dr. Summa will be greatly missed by his many friends both in and out of the medical profession. Although retired from active work on account of his health, his numerous friends and former patients were deeply interested in his welfare and sought his valued advice whenever they found him in St. Louis.

He was recognized as a very competent physician and had developed a large and desirable practice. He did a considerable amount of surgical work at Mullanphy Hospital.

Dr. Summa is survived by his widow, two married daughters, and his son, Dr. Henry Summa, who has shown deep interest in medical progress.

IGNATIUS WALTHALL POWELL, M.D.

Many members of the St. Louis Medical Society have lost a tried and trusted friend in the death of Dr. I. W. Powell, April 6, 1922. He has been in very active general practice in this city since 1907 and has inspired deep confidence and sympathy among his numerous friends and patients.

His body was viewed by many professional and personal friends before being taken for private burial to his birth place, New Bloomfield, Mo. He is survived by Mrs. M. A. Powell, his mother, one sister and four brothers, among them being Dr. Carl A. Powell, an active and valued member of our Society.

Dr. Powell had not enjoyed perfect health for several years and died from pneumonia which developed after an automobile accident five weeks ago, in which he received a fractured rib. His death is a distinct loss to the St. Louis medical profession and to the community.

RESOLUTIONS IN MEMORY OF DR. FRANCIS E. HINCH

At a recent meeting of the Ste. Genevieve County Medical Society the following resolutions

were adopted in memory of our deceased member, Dr. Francis E. Hinch, a notice of whose death appeared in a previous issue of THE JOURNAL:

WHEREAS, Death most terribly and suddenly entered the quiet home of our oldest member and has taken him to eternity, and

WHEREAS, We, the members of the Ste. Genevieve County Medical Society, who knew the talents and honor of Dr. F. E. Hinch, as a physician and surgeon, willingly bear testimony to his wonderful character, sterling leadership and example, fully realizing the terrible loss to his family, our community and society, therefore, be it

Resolved, That one page of the records of our Society be dedicated to his memory, by a copy of this resolution; that copies be furnished the family, THE JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION and the local papers.

LOUIS J. BIRSNER, President,
R. W. LANNING, Secretary,
Ste. Genevieve County Medical Society.

WILLIAM BOSTICK, M.D.

Dr. Wm. Bostick, of St. Louis, a graduate of the Kansas City Medical College, 1898, now the Medical Department of Kansas State University, died at the Deaconess Hospital at St. Louis, June 17, 1922, aged forty-six years.

Dr. Bostick was born at Holden, Mo., and after graduation from the high school there he began the study of medicine. He had practiced in Johnson County, Mo., and Anderson County, Kan., before locating in St. Louis, where he practiced for the past eighteen years. Dr. Bostick was at one time house physician at the Warwick Hotel and lately was house physician at the Marquette Hotel in St. Louis. He was a member of the St. Louis Medical Society and Missouri State Medical Association since the time of his locating in St. Louis and a Fellow of the American Medical Association.

A man of finest character and highest ideas of ethics, he had won the esteem of all who knew him and his loss will be deeply felt by the medical profession and a host of loyal friends.

CARBON TETRACHLORID IN TREATMENT OF HOOKWORM DISEASE.—Carbon tetrachlorid given by C. N. Leach, Manila, P. I. (*Journal A. M. A.*, June 10, 1922), in 10 c.c. doses to a man produced no ill-effects as far as could be seen on microscopic examination. Twelve cubic centimeters of carbon tetrachlorid removed all hookworms and ascarids. The drug apparently had little effect on trichurids and oxyurids.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

- Benton County Medical Society, Oct. 21, 1921.
- Montgomery County Medical Society, Dec. 15, 1921.
- Chariton County Medical Society, Dec. 23, 1921.
- Webster County Medical Society, Dec. 27, 1921.
- Clark County Medical Society, Jan. 13, 1922.
- Reynolds County Medical Society, Jan. 17, 1922.
- Camden County Medical Society, Feb. 8, 1922.
- Schuyler County Medical Society, Feb. 10, 1922.
- Perry County Medical Society, Feb. 13, 1922.
- Vernon County Medical Society, March 24, 1922.
- Pulaski County Medical Society, March 31, 1922.
- Atchison County Medical Society, March 31, 1922.
- Laclede County Medical Society, April 1, 1922.
- Oregon County Medical Society, May 29, 1922.

MISSOURI STATE MEDICAL ASSOCIATION

Sixty-Fifth Annual Meeting, held at Jefferson City,
May 2, 3, 4, 1922

MINUTES OF THE HOUSE OF DELEGATES

Senate Chamber

Tuesday, May 2, 1922—Morning Session

The House of Delegates of the Sixty-Fifth Annual Meeting was called to order by the president, Dr. A. H. Hamel, in the Senate Chamber of the State Capitol, Jefferson City, at 9:50 a. m., Tuesday, May 2, 1922. At roll call, fifty-six officers and delegates responded as follows:

OFFICERS

President, A. H. Hamel, St. Louis.
Vice President, C. W. Russell, Springfield.
Vice President, G. O. Cuppidge, Moberly.
Secretary, E. J. Goodwin, St. Louis.
Treasurer, J. Franklin Welch, Salisbury.

COUNCILORS

2nd District, O. C. Gebhart, St. Joseph.
4th District, J. B. Wright, Trenton.
9th District, A. R. McComas, Sturgeon.
10th District, Don A. Barnhart, Huntsville.
11th District, G. W. Hawkins, Salisbury.
12th District, Spence Redman, Platte City.
13th District, Franklin E. Murphy, Kansas City.
15th District, L. J. Schofield, Warrensburg.
17th District, Guy Titworth, Sedalia.
18th District, J. P. Burke, California.
19th District, W. A. Clark, Jefferson City.
20th District, H. S. McKay, St. Louis.
26th District, W. H. Breuer, St. James.
27th District, J. C. B. Davis, Willow Springs.

DELEGATES

COUNTY	DELEGATES
Boone	J. E. Thornton, Columbia
Buchanan	H. S. Conrad, St. Joseph
Buchanan	J. I. Byrne, St. Joseph
Cass	M. P. Overholser, Harrisonville
Chariton	R. P. Price, Triplett

DELEGATES

COUNTY	DELEGATES
Gentry	A. W. Paulette, King City
Greene	J. W. Love, Springfield
Howard	V. Q. Bonham, Fayette
Jackson	J. N. Jackson, Kansas City
Jackson	Harold P. Kuhn, Kansas City
Jackson	Frank I. Ridge, Kansas City
Jackson	G. Wilse Robinson, Kansas City
Jackson	J. C. Montgomery, Kansas City
Jackson	Geo. E. Bellows, Kansas City
Jasper	R. M. James, Joplin
Lawrence-Stone	H. L. Kerr, Marionville
Perry	Wm. H. Barks, Perryville
Pettis	A. J. Campbell, Sedalia
Phelps	S. L. Baysinger, Rolla
Platte	C. H. Chastain, Weston
Randolph	C. B. Clapp, Moberly
St. Charles	C. L. Lavender, Marthasville
St. Louis	R. B. Dennie, Creve Coeur
St. Louis City	H. S. McKay, St. Louis
St. Louis City	F. Reder, St. Louis
St. Louis City	P. Y. Tupper, St. Louis
St. Louis City	R. M. Funkhouser, St. Louis
St. Louis City	M. A. Bliss, St. Louis
St. Louis City	J. C. Lyter, St. Louis
St. Louis City	R. S. Vitt, St. Louis
St. Louis City	Walter Baumgarten, St. Louis
St. Louis City	C. E. Burford, St. Louis
St. Louis City	E. P. North, St. Louis
St. Louis City	R. E. Schlueter, St. Louis
St. Louis City	W. T. Coughlin, St. Louis
St. Louis City	W. W. Graves, St. Louis
St. Louis City	R. L. Thompson, St. Louis

The minutes of the sixty-fourth annual meeting held at St. Joseph, May 24, 25 and 26, 1921, were approved as published in THE JOURNAL for July, 1921.

The president stated that he had no formal message to deliver to the House, but he recommended that the question of medical legislation be given serious attention and plans discussed by the House of Delegates in order to relieve the chairman of the Committee on Health and Public Instruction as far as possible. A matter of primary importance he desired to impress upon the members was the need of ascertaining the attitude of candidates for political offices toward legislation affecting the practice of medicine and public health.

The secretary read his report. (See page 324.) On motion the report of the secretary was referred to the Council.

The treasurer read his report. (See page 328.) On motion the report was referred to the Council.

The president called attention to the fact that this year was the 25th anniversary of Dr. Welch's service as treasurer of the Association and he appointed Drs. Jabez N. Jackson, Herman E. Pearse, William H. Breuer and William W. Graves to speak to the occasion at the afternoon session immediately preceding the order of business to select the next place of meeting.

The Committee on Scientific Work reported through its chairman that the committee's labors were represented in the printed program, and presented the program as its report. On motion the report was received.

Dr. H. E. Pearse, chairman of the Committee on Health and Public Instruction, reported for that committee. (See page 325.)

After considerable discussion Dr. Breuer moved that a committee of three be appointed to draft a comprehensive report and recommendations on the policy to be adopted for the Committee on Health

and Public Instruction, and the course to be followed at the session of the legislature in 1923, the committee to report to the House of Delegates tomorrow afternoon. Seconded by Dr. Kerr and carried.

The report of the Defense Committee was read by the chairman, Dr. C. E. Hyndman, and on motion the report was adopted. (See page 325.)

Dr. H. E. Pearce read the report for the Committee on Hospitals. On motion the report was adopted. (See page 325.)

The report of the Committee on Medical Education was postponed until the afternoon session.

There was no report from the Committee on Cancer, nor from the Committee on Vaccination.

The report of the Committee on Blindness was read by the chairman, Dr. E. P. North. On motion the report was adopted. (See page 327.)

Dr. Overholser reported for the Committee on Amendments to the Constitution and By-Laws that no amendments had been presented to the committee, therefore he had nothing to report.

Dr. Francis Reder introduced the following amendments to Chapter XII, Section 5, of the by-laws:

AMENDMENTS TO THE BY-LAWS

Amend Chapter XII, Section 5, by adding the following after the word "membership" in line 9: The provision requiring legal registration to practice medicine in Missouri shall not necessarily apply to graduates in medicine engaged in teaching medicine in reputable medical schools, nor to internes in reputable hospitals, nor to commissioned officers in the Medical Corps of the Army, Navy, and United States Public Health Service.

Amend Chapter XII by adding a new section to be known as Section 5a, to read as follows:

Section 5a. A component society may at its discretion place active members who have reached advanced years and have long served the Association and profession, on an "Honor List," and such members shall be known as "Honor Members." They shall enjoy all the privileges of active membership and shall be exempt from dues.

The secretary read the following amendment to the by-laws:

Amend Chapter XII, Sec. 5, line 9, by adding after the word "membership" the words: "who is a citizen of the United States and", so that the section when amended shall read as follows:

Section 5. Each county society shall judge of the qualifications of its own members but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who is a citizen of the United States and who does not support nor practice nor claim to practice sectarian medicine, who shall apply on the prescribed form and subscribe for THE JOURNAL, paying the dues for the current year, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

The president announced that these amendments would be referred to the Committee on Amendments to the Constitution and By-Laws without formal motion.

COMMITTEE ON NOMINATIONS

The president announced the following members on the Committee on Nominations:

R. M. James, Jasper County,
C. B. Clapp, Randolph County,
H. L. Kerr, Lawrence-Stone County,
G. Wilse Robinson, Jackson County,
H. W. McKay, St. Louis City,
J. I. Byrne, Buchanan County,
A. W. Paulette, Gentry County,
C. H. Chastain, Platte County,
W. A. Clark, Cole County,
G. W. Hawkins, Chariton County.

The president announced the following committee of three to draft recommendations on the policy of the Committee on Health and Public Instruction: Herman E. Pearce, M. A. Bliss, W. H. Breuer.

On motion adjourned.

Afternoon Session

The House was called to order by the president at 3:15 p. m.

The president asked permission to introduce Mr. Stalford, of the Gorgas Memorial Institute, which was granted, and he presented Mr. Stalford. Mr. Stalford stated that he was substituting for Dr. Brown of Chicago who was to represent Admiral Braisted, President of the Board of Directors of the Gorgas Memorial Fund, and referred to a letter which Admiral Braisted had written to the secretary of our Association which he asked might be read. The secretary read the letter from Admiral Braisted, as follows:

WASHINGTON, D. C., April 22, 1922.

DR. E. J. GOODWIN, Secretary-Editor,
Missouri State Medical Association,
3529 Pine Street,
St. Louis, Missouri.

DEAR DR. GOODWIN:

Permit me to thank you for your courtesy in sending us a copy of the program for the Missouri State Medical Association.

The Gorgas Memorial Institute has been very fortunate in securing the endorsements of some of the notable state medical associations, as for instance the New York State Medical Association, which has just concluded its sessions in Albany. We are very hopeful indeed that we may be able to secure the endorsement of the Missouri State Medical Association, and with this endorsement to secure the approval of the Association to some future canvass for funds among its members.

We are hopeful that it will be possible for some member of the profession representing us to speak before the annual meeting of the Missouri State Medical Association, May 2nd, 3rd or 4th. Will you not, by return mail, inform me what arrangements could be made for this speaker to present our cause, and before what council or board our request for the official endorsement of the Association must be presented.

Thanking you for your kind assistance, and with expressions of personal esteem, I am,

Very truly yours,

(Signed) WILLIAM C. BRAISTED,
President, Board of Directors.

Mr. Stalford expressed the hope that the House would adopt a resolution endorsing a movement to raise funds for voluntary subscription in support of the Gorgas Memorial and the Secretary read the following resolution on that subject:

RESOLUTION ON GORGAS MEMORIAL

Resolved, That the Missouri State Medical Association in annual convention assembled do pledge our individual and collective support to the worthy movement of conducting a financial campaign of voluntary subscriptions and pledges for the purpose of attaining a perpetual endowment and establish a Memorial Institute of Tropical and Preventive Medicine to the honor and memory of the late Surgeon-General William C. Gorgas, in co-operation with the Gorgas School of Sanitation of Alabama.

Dr. W. W. Graves moved that the resolution be adopted. Seconded and carried.

Dr. McComas read the report of the Council as follows:

REPORT OF THE COUNCIL

The Executive Committee has held three meetings since the 1921 session. At the meeting held July 13, 1921, the Executive Committee authorized the presi-

dent, Dr. A. H. Hamel, to represent the Association as an intervening defendant in the suit of Paul V. Kaesser to enjoin the Secretary of State from placing Senate Bill No. 433 on the ballot. Mr. Kesser represents the persons who are opposed to the referendum on the medical college bill. The Executive Committee also authorized Dr. Hamel to give bond for costs to the amount of \$5,000 as demanded by the court, the Association to assume the responsibility and liability for the amount of the bond, for the premium on the bond, and for the attorney's fees. The Executive Committee felt that such action was in harmony with the intent of the Association in view of the sentiment expressed by the House of Delegates and the General Meeting at the St. Joseph session in 1921; and on the advice of Mr. Morton Jourdan, our attorney, we employed Mr. A. T. Dumm at Jefferson City to defend Dr. Hamel in conjunction with Mr. Barrett, the Attorney General, who represented the Secretary of State.

Mr. Nike G. Sevier of Jefferson City was appointed the Special Master in Chancery, and held a number of hearings in St. Joseph and other points to check up the names signed on the petitions from the Fourth Congressional District, where our petitions were signed by only 31 names more than the legal requirement. The Special Master in Chancery reported to the Circuit Court of Cole County that 23 names were illegally placed on the petitions. This left us a margin of only nine. The Master in Chancery further found that 235 names were not signed in the presence of the person making the affidavit as circulator; that 16 names were written on the petition without authority; that 13 names were written without authority but subsequently ratified; that 7 persons signing the petition were not known at the address given and did not reside at such address. All these names except the 23 mentioned above raised legal questions as to their validity but the Master in Chancery was required merely to report his finding of facts and the court overruled all our exceptions and found for the plaintiff, rendering judgment against the Secretary of State and Dr. Hamel. This ruling of course prevented the Secretary of State from placing Senate Bill No. 433 on the ballot and therefore our attorney filed a motion for arrest of judgment and a motion for a new trial, both of which the court overruled and then our attorney filed an appeal to the Supreme Court where the cause is now pending. We look for the Supreme Court to rule on the question about July 15.

The costs of the suit thus far amount to \$3,563.20. By agreement the plaintiff paid one-half of these costs and we have paid the other half, amounting to \$1,781.60. Should we win the suit in the Supreme Court this amount will be refunded. The Circuit Court allowed the Special Master in Chancery \$2,500 for his services, which also covered and included his expenses. The Special Master in Chancery wanted the court to allow \$3,000 exclusive of his expenses but this the court did not do. The Attorney General will share the expenses of the suit if we lose in the Supreme Court, but is limited by statute to the amount of \$10 per day for the services of the Special Master in Chancery.

As you can see from the above outline of the situation, the prospects of success are rather slim. Our attorney feels however that there is a fighting chance and for that reason he advised us to proceed with the cause through the highest court, and your committee felt that it would be better for us to fight the matter all the way through the courts. It is more creditable to be knocked down in a case of this kind than to lay down.

At the meeting of February 8, 1922, we were informed that the dates of our annual meeting chosen for Excelsior Springs conflicted with the meeting of the Bankers' Association and although we had priority of arrangements at Excelsior Springs the Bankers' Association declined to change their date. The reported sale of the Elms Hotel to an advertising specialist in Kansas City brought a number of protests from members against holding our meeting in that hotel, and a plea to change the place of meeting. Your committee therefore selected Jefferson City for the place of meeting and first selected the dates of May 9, 10 and 11, but the proximity of these dates to the American Medical Association meeting at St. Louis and the uncertainty at that time of the date for convening the Constitutional Convention induced us later to choose the first week in May as the date of our meeting.

A member of the Association was present at the February 8 meeting of the Executive Committee and pleaded for some action to be taken against the practice of secret division of fees. A resolution was drafted calling upon the members of County Societies to cease this practice and a copy was sent to every County Society. The resolution was also published in *THE JOURNAL* as part of an editorial against fee splitting. This is a practice which our Association has already condemned and those who are found guilty should be disciplined. It is encouraging to note that the Buchanan County Medical Society took action on this subject at its meeting on April 7 and adopted a motion made by Dr. Elam and seconded by Dr. C. H. Wallace, that the Buchanan County Medical Society "declare the secret division of fees indefensible and that charges will be preferred against any member practicing such methods." In this connection we might say that the editor of *THE JOURNAL* received an anonymous communication, post-marked St. Joseph, offering arguments in defense of fee splitting. The editor sent the communication to Dr. Gebhart, councilor of the Second District, who brought it to the attention of the Buchanan County Medical Society at the special meeting held on April 7, and the Society condemned the author of the communication, declaring that "if this anonymous communication was written by a member that he is a cur and a coward and if he has any manhood he will resign from this Society."

After the many years we have been fighting for restoration of a four-year course in medicine at the State University and a State Hospital for clinical teaching the legislature of 1921 authorized the construction of a State Hospital at Columbia and the Board of Curators has announced that he four-year course in medicine will be restored. The selection of the site for the hospital at Columbia does not seem to be the most favorable location and therefore your Executive Committee appointed a committee, consisting of Doctors Funkhouser, Pearse, Hamel, Breuer and McComas, to inspect the site and confer with the Board of Curators. Dr. Pearse could not act on the committee and Dr. Jabez N. Jackson was appointed in his place.

This committee visited Columbia and will make its report to your body.

A new contract for publishing *THE JOURNAL* has been made with the A. R. Fleming Printing Company who printed *THE JOURNAL* in 1921, and we are glad to report a saving that will amount to about \$2,000 during this year.

The DeKalb County Medical Society notified the Secretary that they had decided to refuse sending a delegate to this session and declined paying the \$5 dues. After correspondence with the Secretary the DeKalb County Society rescinded its action and se-

lected a delegate who is instructed to take up the question of dissatisfaction at this session.

Dr. H. G. Grosby of St. Louis has appealed from the action of the St. Louis Medical Society in rejecting his application for membership. It is to be noted that his appeal is dated April 25, 1922, but the date of his rejection by the St. Louis Medical Society is December 16, 1918. We have notified Dr. Grosby that the appeal was referred to the Council for consideration at this meeting.

On motion by Dr. Dennie, duly seconded, the report of the Council was approved and adopted.

Dr. A. W. McAlester read the report of the Committee on Medical Education. (See page 326.)

Dr. McComas stated that he had a report bearing on the same subject and asked permission to read it at this time. Permission was granted and Dr. McComas read the following report on the selection of the site of the State General Hospital:

SITE OF STATE HOSPITAL

The State Medical Association, composed of over 3,000 physicians, tax-paying citizens of this state, realizing the necessity of a complete university medical education for the young men and women of this state, unanimously adopted at its 1919 annual meeting a memorial to the Governor and legislature asking that a state general hospital be erected at Columbia for the needs of the people and the teaching of medicine.

At its annual meeting in 1920 the Committee on Health and Public Instruction was instructed to urge the passage of a bill appropriating the necessary funds. This was accordingly done.

The State Medical Association, feeling a due responsibility for this undertaking which will involve the expenditure of a large sum of money of the people of this state, and being desirous of rendering their aid in every way to the upbuilding of a great hospital and a medical school at the State University commensurate with the greatness of the state, realizes the importance of starting right. Therefore, the Executive Committee of the Council of the State Medical Association appointed a committee to visit Columbia and inquire into the scope of the buildings to be erected and view the sites.

We find the plans include a general hospital of 300 beds, cost when completed \$1,500,000; a children's hospital, including an orthopedic ward, 100 beds, cost \$300,000; a psychopathic ward to cost \$200,000.

With the money already appropriated by the legislature it is proposed to build one wing of the general hospital. This we approve.

1. The site south of the gymnasium is unquestionably the best one on state property within easy access of either campus.

2. Plenty of room for expansion.

3. It is high, has a broad exposure to the south and west, which no other site offers.

4. Plenty of sunlight and an uninterrupted sweep to the south and west. This is especially valuable in the summer months for the comfort of the patients on account of the breeze.

5. Plenty of outside room for convalescents. This is especially valuable for the children, away from the noise, dust and dangers of the street. Here they may play in safety.

6. We see no objection to the distance from the medical building, but rather an advantage.

7. The laboratory service necessary to the immediate use of a hospital would have to be incorporated into the new hospital anyway.

8. The more extensive equipment for laboratory research including storage could be utilized in the medical building where it now stands.

9. The value or importance of the ground south of the gymnasium as it is now used cannot be compared to its value to the people of the state were it converted into a site for a hospital, for which it is naturally adapted.

10. The surroundings of a hospital of this character have nothing in common with the University campus on which are located many schools and which is the center of the activities of the student body.

11. The front campus should be left as a memory spot to greet the older alumni and former students when they return to visit their Alma Mater.

Finally, we ask that the hospital be located upon the site south of the gymnasium in order that the State Medical Association may give its whole-hearted support to the building of a great hospital and a great medical school.

R. M. FUNKHOUSER,
JABEZ N. JACKSON,
A. H. HAMEL,
A. R. MCCOMAS, Chairman.

Dr. Kerr moved that both these reports be received and filed. Seconded and carried.

Dr. Bliss reported for the special committee appointed to draft the policy of the Committee on Health and Public Instruction as follows:

REPORT OF SPECIAL COMMITTEE ON LEGISLATIVE POLICY

We, your special committee appointed to draft recommendations concerning the policy to be followed by the Committee on Health and Public Instruction, offer the following recommendations:

First, that we do not repeal the present practice act nor alter it, but that we employ competent counsel to see that it is properly enforced.

Second, that we employ a competent person to remain at Jefferson City during the session of the legislature to safeguard all public health bills and keep the Association informed on the progress of such bills.

Third, that Dr. M. A. Bliss be appointed to represent the Association in all matters pertaining to public health which may come before the Constitutional Convention.

Fourth, that immediate steps be taken to ascertain the attitude of candidates for the legislature on questions of public health.

Fifth, that the legislative functions of the Committee on Health and Public Instruction be assigned to the Executive Committee and the responsible officers of the Association.

Dr. R. E. Schlueter moved that the report be adopted. Seconded and carried.

The president announced that the hour for the special order of business to hear speakers on the subject of celebrating the completion of the 25th anniversary of our treasurer, Dr. Welch, in service of the Association as treasurer had arrived and called upon the following speakers to address the House: Dr. Jabez N. Jackson, Dr. H. E. Pearse, Dr. W. H. Breuer and Dr. W. W. Graves.

At the conclusion of these addresses the president announced that the hour for the meeting tonight had been changed from seven to seven-thirty and that the Association would adjourn immediately after the reading of the papers to the Governor's Mansion to be the guests of the Governor at a reception given by Governor and Mrs. Hyde.

The selection of the next place of meeting brought invitations from Jasper County Medical Society to meet at Joplin and from Greene County Medical Society to meet at Springfield in 1923. A rising vote was taken on the question and Joplin was selected by unanimous vote.

On motion the House adjourned until 2 p. m., Wednesday.

Wednesday, May 3—2 p. m.

The House of Delegates was called to order by the president, Dr. A. H. Hamel, at 2 p. m. The roll call showed fifty-six officers and delegates present.

The minutes of the preceding meeting were read and approved.

NOMINATION OF PRESIDENT

The president announced that if there was no objection, the order of business would be changed by making the election of the president the first order of business to precede the report of the nominating committee. There being no objection to this procedure, the president called for nominations for president for the year 1922-23. Dr. Jabez N. Jackson placed the name of Dr. A. R. McComas, of Sturgeon, in nomination for president. The nomination was seconded by Dr. R. E. Schlueter and others.

Dr. Guy Titsworth moved that he nominations be closed and that the Secretary be instructed to cast

the ballot at the House for the election of Dr. McComas as president of the Association. The motion was seconded and carried.

The secretary cast the ballot for Dr. McComas as ordered and the president announced that Dr. McComas had been unanimously elected president of the Association for the ensuing year.

The president appointed Dr. Jabez N. Jackson and Dr. Robert E. Schlueter a committee to escort Dr. McComas to the chair. Dr. Hamel presented Dr. McComas as the incoming president and Dr. McComas, after the enthusiastic applause on his election had ceased, accepted the office and invited the support and assistance of all the members in his labors during his incumbency.

Dr. R. M. James, chairman of the Committee on Nominations, reported for that committee as follows:

REPORT OF THE NOMINATING COMMITTEE

Your Nominating Committee begs leave to report the following nominations:

First Vice President, H. C. Powers, Joplin.

Second Vice President, Frank I. Ridge, Kansas City.

Third Vice President, W. C. Gayler, St. Louis.

Fourth Vice President, E. C. Callison, Kirksville.

Fifth Vice President, L. M. Edens, Cabool.

Councilors:

9th District, J. Frank Harrison, Mexico.

10th District, D. A. Barnhart, Huntsville.

13th District, Geo. E. Bellows, Kansas City.

20th District, A. H. Hamel, St. Louis.

Delegates to the American Medical Association for two years: A. W. McAlester, Jr., Kansas City; S. L. Baysinger, Rolla. If entitled to a third delegate, G. W. Hawkins, Salisbury.

The committee not being acquainted with any members present from districts 1, 8, 23 and 25 we recommend that these districts be declared vacant and the president appoint the councilors.

One member for the Committee on Health and Public Instruction, L. C. Chenoweth, Joplin.

Three members of the Defense Committee, C. E. Hyndman, R. E. Schlueter, R. S. Vitt, St. Louis.

Cancer Committee, W. H. Mook, Chairman, St. Louis; C. A. Good, St. Joseph; S. T. Ragan, Moberly.

Respectfully submitted,

THE NOMINATING COMMITTEE,

R. M. JAMES, Chairman.

Dr. Baysinger, one of the delegates to the American Medical Association nominated by the committee, stated that he had served as a delegate and believed that the honors and burdens of this office should be distributed among the members. He thanked the House for the honor of re-nominating him but requested that his name be withdrawn in favor of Dr. W. J. Ferguson of Sedalia.

There being no objection, Dr. Ferguson's name was substituted for that of Dr. Baysinger in the committee report.

Dr. Baysinger moved that the report as amended be adopted. Seconded and carried.

Dr. Overholser, chairman of the Committee on Constitution and By-Laws, reported for that committee as follows:

AMENDMENTS TO THE BY-LAWS

We recommend that the amendment to Chapter XII, Section 5, requiring members to be citizens of the United States be adopted.

On motion the recommendation was adopted.

We recommend that the amendment to Chapter XII, Section 5, reading, "The provision requiring legal registration to practice medicine in Missouri shall not necessarily apply to graduates in medicine engaged in teaching medicine in reputable medical schools, nor to internes in reputable hospitals, nor commissioned officers in the Medical Corps of the Army, Navy or United States Public Health Service," be adopted with the exclusion of the words, "nor to internes in reputable hospitals nor commissioned officers in the Medical Corps of the Army, Navy or United States Public Health Service," so that the section as amended shall read as follows:

Section 5. Each county society shall judge of the qualifications of its own members, but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who is a citizen of the United States and who does not support nor practice nor claim to practice sectarian medicine, who shall apply on the prescribed form and subscribe for *THE JOURNAL*, paying the dues for the current year, shall be entitled to membership. The provision requiring legal registration to practice medicine in Missouri shall not necessarily apply to graduates in medicine engaged in teaching medicine in reputable medical schools. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Dr. Overholser moved the adoption of the amendment. Seconded.

Dr. Jackson moved to amend the report by substituting the word "may" for the word "shall" between the words "year" and "be" in line eight of the committee report. Seconded and carried.

Dr. Jackson moved that the word "while" be inserted between the words "medicine" and "engaged" in line eleven of the committee report. Seconded and carried.

Dr. Overholser reported that the committee recommended the adoption of the following amendment to Chapter XII:

Amend Chapter XII by adding a new section to be known as Section 5a to read as follows:

Section 5a. A component society may at its discretion place active members who have reached advanced years and have long served the Association and profession on an Honor List and such members shall be known as Honor Members. They shall enjoy all privileges of active membership and shall be exempt from dues.

Dr. Schlueter moved that the amendment be adopted. Seconded and carried.

The chapter as amended was read by the secretary as follows:

CHAPTER XII AS AMENDED

Section 5. Each county society shall judge of the qualifications of its own members but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who is a citizen of the United States and who does not support nor practice nor claim to practice sectarian medicine, who shall apply on the prescribed form and subscribe for *THE JOURNAL*, paying the dues for the current year, may be entitled to membership. The provision requiring legal registration to practice medicine in Missouri shall not necessarily apply to graduates in medicine while engaged in teaching medicine in reputable medical schools. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Section 5a. A component society may at its discretion place active members who have reached advanced years and have long served the Association and profession on an Honor List and such members shall be known as Honor Members. They shall enjoy all privileges of active membership and shall be exempt from dues.

Dr. Hawkins moved that the report as amended be adopted. Seconded and carried.

The Secretary read a letter from the New Constitution Association of Missouri, as follows:

DR. M. A. BLISS,
Humboldt Building,
St. Louis, Mo.

St. Louis, April 12, 1922.

DEAR DR. BLISS:

I am writing to learn whether it would be possible for the Missouri State Medical Association to help finance the work of our Association during the coming Constitutional Convention. We have never asked the Medical Association as a body for financial help, although we have received from physicians generally, support in each of our campaigns, both at the polls and individually.

The situation that now confronts us is this, we are anxious to put on a publicity campaign in behalf of the necessary constructive changes in the constitution, so the delegates will feel that they have the support of the best people of the state in all they undertake. To carry out our program properly, we must have a representative at Jefferson City during the entire period of the convention. We estimate that not more than \$15,000 will be required to finance our needs and of this amount St. Louis is raising \$5,000. Kansas City \$2,500, and the business interests in other places smaller amounts. The Missouri Teachers' Association, as usual, has pledged us \$1.00 for every \$5.00 raised from other sources.

If the Missouri State Medical Association would raise or underwrite \$500.00 it would be a great help in meeting our financial needs and at the same time would give every physician in the state a direct personal interest in the work we are trying to do.

If you will place the matter before your Board of Directors, so that they can either appropriate the money or issue an appeal to the members to raise it, it will be a splendid service and I feel sure you will not regret it. Thanking you for the splendid assistance you have already given us and for anything you can do in the present instance, with best wishes, I remain,

Very truly yours,

W. M. LEDBETTER,
Executive Secretary.

On motion the request of the New Constitution Association was referred to the Council.

On motion the House adjourned *sine die*.

MINUTES OF THE COUNCIL

Tuesday, May 2, 1922

The annual meeting of the Council, held in the Senate Chamber of the Capitol, Jefferson City, May 2, 1922, was called to order at 1:35 p. m. by the Chairman, Dr. A. R. McComas. At the roll call, the following Councilors responded:

2nd District, O. C. Gebhart, St. Joseph.
4th District, J. B. Wright, Trenton.
9th District, A. R. McComas, Sturgeon.
10th District, D. A. Barnhart, Huntsville.
11th District, G. W. Hawkins, Salisbury.
12th District, Spence Redman, Platte City.
13th District, Franklin E. Murphy, Kansas City.
15th District, L. J. Schofield, Warrensburg.
17th District, Guy Titsworth, Sedalia.
18th District, J. P. Burke, California.
19th District, W. A. Clark, Jefferson City.
20th District, H. S. McKay, St. Louis.
26th District, W. H. Breuer, St. James.
27th District, J. C. B. Davis, Willow Springs.

The minutes of the last meeting were approved as published in THE JOURNAL for July, 1921.

The chairman read the report of the Executive Committee as follows:

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee has held three meetings since the 1921 session. At the meeting held July 13, 1921, the Executive Committee authorized the president, Dr. A. H. Hamel, to represent the

Association as an intervening defendant in the suit of Paul V. Kaesser to enjoin the Secretary of State from placing Senate Bill No. 433 on the ballot. Mr. Kaesser represents the persons who are opposed to the referendum on the medical college bill. The Executive Committee also authorized Dr. Hamel to give bond for costs to the amount of \$5,000 as demanded by the court, the Association to assume the responsibility and liability, for the amount of the bond, for the premium on the bond, and for the attorney's fees. The Executive Committee felt that such action was in harmony with the intent of the Association in view of the sentiment expressed by the House of Delegates and the General Meeting at the St. Joseph session in 1921, and on the advice of Mr. Morton Jourdan, our attorney, we employed Mr. A. T. Dumm at Jefferson City to defend Dr. Hamel in conjunction with Mr. Barrett, Attorney General, who represented the Secretary of State.

Mr. Nike G. Sevier of Jefferson City was appointed the Special Master in Chancery, and held a number of hearings in St. Joseph and other points to check up the names signed on the petitions from the Fourth Congressional District, where our petitions were signed by only 31 names more than the legal requirement. The Special Master in Chancery reported to the Circuit Court of Cole County that 23 names were illegally placed on the petitions. This left us a margin of only nine. The Master in Chancery further found that 235 names were not signed in the presence of the person making the affidavit as circulator; that 16 names were written on the petition without authority; that 13 names were written without authority but subsequently ratified; that 7 persons signing the petition were not known at the address given and did not reside at such address. All these names except the 23 mentioned above raised legal questions as to their validity but the Master in Chancery was required merely to report his finding of facts and the court overruled all our exceptions and found for the plaintiff, rendering judgment against the Secretary of State and Dr. Hamel. This ruling of course prevented the Secretary of State from placing Senate Bill No. 433 on the ballot and therefore our attorney filed a motion for arrest of judgment and a motion for a new trial, both of which the court overruled and then our attorney filed an appeal to the Supreme Court where the cause is now pending. We look for the Supreme Court to rule on the question about July 15.

The costs of the suit thus far amount to \$3,563.20. By agreement the plaintiff paid one-half of these costs and we have paid the other half, amounting to \$1,781.60. Should we win the suit in the Supreme Court this amount will be refunded. The Circuit Court allowed the Special Master in Chancery \$2,500 for his services, which also covered and included his expenses. The Special Master in Chancery wanted the court to allow \$3,000 exclusive of his expenses but this the court did not do. The Attorney General will share the expenses of the suit if we lose in the Supreme Court, but is limited by statute to the amount of \$10 per day for services of the Special Master in Chancery.

As you can see from the above outline of the situation, the prospects of success are rather slim. Our attorney feels however that there is a fighting chance and for that reason he advised us to proceed with the cause through the highest court and your committee felt that it would be better for us to fight the matter all the way through the courts. It is more creditable to be knocked down in a case of this kind than to lay down.

At the meeting of February 8, 1922, we were informed that the dates of our annual meeting chosen

for Excelsior Springs conflicted with the meeting of the Bankers' Association and although we had priority of arrangements at Excelsior Springs, the Bankers' Association declined to change their date. The reported sale of the Elms Hotel to an advertising specialist in Kansas City brought a number of protests from members against holding our meeting in that hotel, and a plea to change the place of meeting. Your committee therefore selected Jefferson City for the place of meeting and first selected the dates of May 9, 10 and 11, but the proximity of these dates to the American Medical Association meeting at St. Louis and the uncertainty at that time of the date for convening the Constitutional Convention induced us later to choose the first week in May as the date of our meeting.

A member of the Association was present at the February 8 meeting of the Executive Committee and pleaded for some action to be taken against the practice of secret division of fees. A resolution was drafted calling upon the members of County Societies to cease this practice and a copy was sent to every County Society. The resolution was also published in *THE JOURNAL* as part of an editorial against fee splitting. This is a practice which our Association has already condemned and those who are found guilty should be disciplined. It is encouraging to note that the Buchanan County Medical Society took action on this subject at its meeting on April 7 and adopted a motion made by Dr. Elam and seconded by Dr. C. H. Wallace, that the Buchanan County Medical Society "declare the secret division of fees indefensible and that charges will be preferred against any member practicing such methods." In this connection we might say that the editor of *THE JOURNAL* received an anonymous communication, post-marked St. Joseph, offering arguments in defense of fee splitting. The editor sent the communication to Dr. Gebhart, Councilor of the Second District, who brought it to the attention of the Buchanan County Medical Society at the special meeting held on April 7, and the Society condemned the author of the communication and declared that "if this anonymous communication was written by a member that he is a cur and a coward and if he has any manhood he will resign from this Society."

After the many years we have been fighting for restoration of a four-year course in medicine at the State University and a State Hospital for clinical teaching the legislature of 1921 authorized the construction of a State Hospital at Columbia and the Board of Curators has announced that the four-year course in medicine will be restored. The selection of the site for the hospital at Columbia does not seem to be the most favorable location and therefore your Executive Committee appointed a committee consisting of Drs. Funkhouser, Pearse, Hamel, Breuer and McComas to inspect the site and confer with the Board of Curators. Dr. Pearse could not act on the committee and Dr. Jabez N. Jackson was appointed in his place.

This committee visited Columbia and will make its report to your body.

A new contract for publishing *THE JOURNAL* has been made with the A. R. Fleming Printing Company who printed *THE JOURNAL* in 1921 and we are glad to report a saving that will amount to about \$2,000 during this year.

The DeKalb County Medical Society notified the secretary that they had decided to refuse sending a delegate to this session and declined paying the \$5 dues. After correspondence with the secretary the DeKalb County Society rescinded its action and selected a delegate who is instructed to take up the question of dissatisfaction at this session.

Dr. H. G. Grosby of St. Louis has appealed

from the action of the St. Louis Medical Society in rejecting his application for membership. It is to be noted that his appeal is dated April 25, 1922, but the date of his rejection by the St. Louis Medical Society is December 16, 1918. We have notified Dr. Grosby that the appeal was referred to the Council for consideration at this meeting.

Dr. Clark moved that the report be approved and adopted. Seconded and carried.

The chairman appointed the following auditing committee: Drs. D. A. Barnhart, Spence Redman, J. C. B. Davis.

The secretary read the appeal of Dr. H. G. Grosby, of St. Louis, from the action of the St. Louis Medical Society in refusing him membership in that Society. Dr. Breuer moved that the appeal be dismissed on account of Dr. Grosby failing to be present at this meeting. Seconded and carried.

The secretary read a letter from the DeKalb County Medical Society which was ordered filed.

Dr. E. C. Callison, of Kirksville, was given the privilege of the floor to relate the conditions existing in Kirksville. He stated that one of our members was a member of the teaching staff of the American School of Osteopathy and that another member owned a private hospital and had an osteopath on the staff of the hospital. Dr. Callison stated these conditions were so demoralizing that it was impossible to maintain the interest of the members of the Society and the work of the organization.

After considerable discussion Dr. Breuer moved that the secretary be instructed to visit Adair County Medical Society and investigate the conditions and if found as related to notify the County Society that their members who are connected with the school of Osteopathy must drop their affiliation with that school and the member owning the hospital must drop the osteopath from his staff, and that if these orders were not complied with, the secretary was instructed to bring the charter of the Adair County Medical Society back to headquarters. The motion was seconded.

The subject was discussed extensively after which the chairman ruled that the motion was out of order because it was beyond the power of the Council to delegate authority of this nature to the secretary for the reason that the Council or the House of Delegates are the only bodies authorized by our constitution and by-laws to revoke the charter of a county society.

Dr. Breuer withdrew his motion.

On motion the Council adjourned.

Wednesday Afternoon, May 3, 1922

The Council was called to order at 3 p. m. by the chairman, Dr. McComas.

The minutes of the previous meeting were read and approved.

The secretary read a letter from the New Constitution Association of Missouri, referred to the Council, asking us to contribute \$500 towards the expense of that organization.

Dr. Breuer moved that in view of the state of our finances and the fact that we are liable to be called upon for additional expenses in connection with the referendum, it is the sense of the Council that we are unable to contribute any sum to the New Constitution Association of Missouri. Seconded and carried.

Dr. Barnhart reported for the Auditing Committee as follows:

May 2, 1922.

We, the Auditing Committee, have this day examined the books of the treasurer and find them correct. The Com-

mittee wishes to congratulate the Doctor on his accurate and splendid system of bookkeeping.

D. A. BARNHART,
SPENCE REDMAN,
J. C. B. DAVIS.

The election of the treasurer of the Association was the next order of business and Dr. Breuer nominated Dr. Welch to succeed himself. The nomination was seconded and motion made that the nominations be closed, and the secretary cast the ballot of the Council for the election of Dr. Welch. Seconded and carried.

The secretary cast the ballot and Dr. Welch was declared duly elected.

Dr. Hamel nominated Dr. Goodwin to succeed himself as secretary-editor. It was duly seconded.

Dr. Breuer moved that the nominations be closed and the chairman cast the ballot for the election of Dr. Goodwin. Seconded and carried.

The chairman cast the ballot and Dr. Goodwin was declared elected.

Dr. Hawkins nominated Dr. Hamel for chairman of the Council. Dr. Breuer seconded the nomination and Dr. Guy Titsworth moved that the nominations be closed and the secretary cast the ballot for the election of Dr. Hamel as chairman. Seconded and carried.

The secretary cast the ballot and Dr. Hamel was declared elected chairman of the Council.

Dr. Breuer nominated Dr. Goodwin as secretary of the Council. The nomination was seconded and on motion Dr. Goodwin was elected secretary of the Council.

Dr. Hamel nominated Dr. Breuer a member of the Executive Committee which was duly seconded. Dr. Hamel moved that the nominations be closed and the secretary cast the ballot for Dr. Breuer, who was duly elected.

Dr. Breuer nominated Dr. J. Frank Harrison a member of the Executive Committee which was duly seconded and upon instruction the secretary cast the ballot for the election of Dr. Harrison as a member of the Executive Committee.

Dr. McComas expressed in a very feeling manner his sincere appreciation for the co-operation that the Council had extended to him during his chairmanship and thanked the Councilors for their loyalty and their unselfish devotion to the interests of the Missouri State Medical Association. He reminded the Council that this is the business body of the organization and that the members have it in their power in the interim between meetings to safeguard the interests of the Association and promote the effectiveness of the organization and that during the years it had been his privilege to act as chairman of the Executive Committee and of the Council, he had found the members willing and ready at all times to give that support needed to maintain the activities of the Association, and he knew that they would continue to render the same sort of support to the new chairman.

Dr. Breuer moved that the Council extend a rising vote of thanks to Dr. McComas for the faithful service he had rendered the Association at all times and under all circumstances, having shown that he was ready to leave his business at all times and spend time at the sacrifice of his own personal affairs to forward the interests of the Association; never had there been a time when Dr. McComas was found too busy to leave his home and his affairs in order to transact the business of the Association. The Council spontaneously rose to its feet in carrying out Dr. Breuer's motion in order to record their deep sense of their obligations to Dr. McComas for his faithful and efficient service.

On motion adjourned.

MINUTES OF THE GENERAL MEETING

The sixty-fifth annual meeting of the Missouri State Medical Association met in the House of Representatives of the Capitol, Jefferson City, Tuesday morning, May 2, 1922, and was called to order at 9 o'clock by the president, Dr. A. H. Hamel, of St. Louis. At the request of Dr. Hamel, Dr. N. P. Wood, of Independence, presided during the morning session.

The first paper presented was that of Dr. Joseph S. Lichtenberg, of Kansas City, on "Glaucoma Following Cataract Operation."

This paper was discussed by Dr. A. W. McAlester, of Kansas City, with Dr. Lichtenberg closing the discussion.

This was followed by a paper on "The Pension Law for the Blind from the Ophthalmologist's Standpoint," by Dr. Harvey J. Lamb, of St. Louis.

Dr. F. E. Woodruff, of St. Louis, opened the discussion on this paper, followed by Drs. McAlester, of Kansas City; Charles H. Wallace, of St. Joseph, and Joseph P. Lichtenberg, of Kansas City. Dr. Lamb closed the discussion.

Dr. James R. McVay presented a paper on "Diagnosis of Diseases of the Esophagus," illustrated with slides.

This paper was discussed by Dr. Charles H. Wallace, of St. Joseph, and Dr. J. J. Singer, of St. Louis. Dr. McVay closed the discussion.

Dr. Jackson not being present to read his paper, the chairman called for the paper on "The Medical Treatment of Gastric Ulcer," by Dr. James I. Tyree, of Joplin.

Dr. J. J. Singer, of St. Louis, discussed this paper briefly, and Dr. Tyree closed the discussion.

Dr. Chas. W. Greene, of Columbia, who had the concluding paper of the morning program, being absent, the session was declared adjourned until 1:30 p. m.

Afternoon Session

The meeting was called to order at 1:45 on Tuesday afternoon by the president, Dr. A. H. Hamel.

The first paper presented was that of Dr. H. McClure Young, of St. Louis, on "The Problem of the Moderately Hypertrophied Prostate," which was illustrated by slides.

This paper was discussed by Dr. Julius Fischer and Dr. Clinton K. Smith, of Kansas City.

In the symposium on hematuria, the following papers were presented before discussion took place:

"Tumor of the Kidney as a Cause of Hematuria," by Dr. F. M. McCallum, of Kansas City.

"Disease of the Prostate and Urethra as a Cause of Hematuria," by Dr. Julius Frischer, of Kansas City.

"Infection as a Cause of Hematuria," by Dr. Nelse F. Ockerblad, of Kansas City.

President Hamel called Dr. N. P. Wood to the chair at this time and the latter presided during the remainder of the afternoon session.

Dr. E. G. Mark not being present the discussion on the symposium was opened by Dr. Clinton K. Smith, of Kansas City, followed by Dr. Moore, of St. Louis, with the discussion closed by Dr. McCallum.

The paper by Dr. Jabez N. Jackson, of Kansas City, was then presented, Dr. Jackson's subject being "Some Points on Differential Diagnosis Between Chronic Appendicitis and Simulating Conditions."

This paper was discussed by Drs. H. P. Kuhn, Clinton K. Smith and F. M. McCallum, of Kansas City; Dr. E. Mansur, of Jefferson City, and Dr. J. W. Connaway, of Columbia.

The meeting then adjourned until 7:30 p. m.

Evening Meeting

The Tuesday evening meeting convened in the House of Representatives and was called to order by the president, Dr. A. H. Hamel.

Vice President G. O. Cuppiage, of Moberly, took the chair during the delivery of the president's annual address.

President Hamel then resumed the chair and called upon Governor Arthur M. Hyde, who made a stirring appeal for the future welfare of Missouri dealing particularly with the rural school problem.

A paper by Dr. Guy L. Noyes, of Columbia, was presented by the author on the subject, "A Statement of the Plan Re-Establishing the Four Years' Course in the School of Medicine at the University of Missouri."

The evening program was concluded by a paper on "The Re-Organization and Consolidation of the State Hospitals of Missouri," presented by Dr. G. P. Ard, of Jefferson City.

Adjournment was declared until 9 o'clock Wednesday morning.

Wednesday, May 3, 1922—Morning Session

Dr. A. H. Hamel, the president, called the meeting to order on Wednesday morning at 9:15.

The first paper presented was that of Dr. W. T. Coughlin, of St. Louis, on "The Permanent Cure for Trigeminal Neuralgia," which was illustrated by slides.

This paper elicited considerable discussion in which the following participated: M. A. Bliss, St. Louis; H. P. Kuhn, Kansas City; St. Elmo Sanders, Kansas City, and Caryl Potter, of St. Joseph. Dr. Coughlin concluded the discussion.

The second paper of the morning session was presented by Dr. W. E. Leighton, of St. Louis, his topic being "Surgical Treatment of Carcinoma of the Lip." Dr. Leighton concluded the presentation with slides.

Upon motion it was voted to eliminate the discussion of this and all subsequent papers of the morning session until all had been presented owing to lack of time.

"Carcinoma of the Breast: Its Diagnosis and Treatment," was presented by Dr. C. F. Sherwin, of St. Louis, who illustrated his remarks by slides.

A paper on "The Newer Treatment of Bronchiectasis," prepared by Drs. J. J. Singer and Everts A. Graham, of St. Louis, was presented by the former, who showed the apparatus he has devised for pneumothorax examinations, and the paper was further illustrated by slides.

Dr. F. D. Gorham, of St. Louis, presented a paper on "Cholecystitis and Cholelithiasis: Medical Aspects and Treatment," which was followed by a paper dealing with the surgical treatment of these diseases, presented by Dr. Roland Hill, of St. Louis.

The secretary read telegrams from Dr. E. C. White, of Kansas City, and vice president B. W. Hays, of Jackson, each regretting his inability to be present.

Dr. Goodwin also announced that owing to the limited number of county secretaries present, the Secretaries' Banquet which was scheduled for Wednesday evening would not be held this year.

Adjournment until 2 p. m.

Afternoon Session

The Wednesday afternoon session met pursuant to adjournment, with Dr. N. P. Wood, of Independence, in the chair.

The first paper of the afternoon was presented

by Dr. George Gellhorn, of St. Louis, his topic being "The Treatment of Pelvic Inflammation with Milk Injections."

Upon motion, the discussion of the afternoon papers was eliminated until all had been presented.

The following papers were then read:

"Congenital Syphilis and the Eruption of the First Teeth," by Dr. Ellsworth E. Moody, of Joplin.

"Acrodynia in Infants," by Dr. John Zahorsky, of St. Louis.

"A Study of Six Hundred and Twenty Intradermic Vaccinations with Smallpox Vaccine," by Dr. Tom Twyman, of Independence.

"Control of Diphtheria in Missouri," by Dr. P. G. Hurford, of St. Louis.

Following the presentation of these papers, Dr. Caryl Potter suggested the discussions be extended to the morning papers which had not been discussed. It seemed to be the consensus of opinion that the discussion should first be confined to those papers just read, since they were freshest in the minds of the hearers.

Animated discussion of several papers of the day followed.

Dr. Gellhorn's paper was discussed by Drs. C. Lester Hall, Kansas City; J. J. Singer, St. Louis; Caryl Potter, St. Joseph; T. J. Beattie, Kansas City; W. T. Coughlin, St. Louis, and J. W. Connaway, Columbia.

Drs. John Zahorsky, of St. Louis, and A. W. Kampschmidt, of Columbia, discussed the paper by Dr. Twyman.

Dr. Caryl Potter, of St. Joseph, in addition to speaking briefly on the paper presented by Dr. Gellhorn, discussed at some length the papers presented by Drs. Leighton and Sherwin during the morning session.

The discussion was concluded by Dr. Gellhorn.

President Hamel took the chair. He called the attention of the members to the fact that Dr. J. W. Connaway, of Columbia, had prepared a lecture and demonstration on "Infectious Abortion," and asked the pleasure of the convention as to when he might be heard. Upon motion, Dr. Connaway was invited to give his lecture Thursday morning.

President Hamel then introduced president-elect A. R. McComas, of Sturgeon, who took the chair, and after a few words of appreciation for the honor conferred upon him, declared the convention adjourned until 9 o'clock Thursday morning.

Thursday, May 4, 1922—Morning Session

Dr. A. R. McComas called the convention to order at 9:10 on Thursday morning, introducing Dr. J. W. Connaway, of Columbia, who gave a talk on infectious abortion in animals, suggesting the probability of the spread to humans through milk from infected cows. The lecture was illustrated by slides.

Owing to lack of time, discussion of the papers was again deferred until after all papers had been presented.

The following papers were then read:

"The Diagnosis and Treatment of Heart Failure," by Dr. Claude J. Hunt, of Kansas City.

"Arterial Hypertension," by Dr. L. S. Milne, of Kansas City.

"Paralysis Agitans," by Dr. D. S. Booth, of St. Louis.

"Treatment of Tuberculosis," by Dr. Frank I. Ridge, of Kansas City.

"The Relation of War Gases and Influenza to Tuberculosis," a paper prepared by Dr. R. H. Meade, Kansas City, deceased, was read by Dr. Ridge.

"Treatment of Pernicious Anemia with Arsenic

and Hydrochloric Acid," by Dr. P. T. Bohan, of Kansas City.

"Immediate Cure of Chronic Catarrhal Deafness: Painless Cure of Chronic Ear Discharge, Including the Ideal Mastoid Antrum Opening by Way of the Auditory Canal; Cases Still Relieved Fifteen to Twenty-five Years and More Afterwards," by Dr. Robert Barclay, St. Louis.

The lateness of the hour prevented any discussion of these papers.

Dr. McComas urged the attendance of those present at the Roentgenological Section at 1:30 p. m.

Afternoon Session

Dr. McComas called the convention to order at 1:45, after which Dr. E. C. Ernst took charge of the program.

The following papers were presented:

"Gastrointestinal Studies," by Dr. Gentz Perry, St. Louis.

"Diaphragmatic Hernia of the Stomach; Non-Traumatic," by Dr. E. H. Kessler, St. Louis.

"The Comparison of the Clinical and Radiological Findings in Some of the Chest Conditions," by Drs. M. B. and P. F. Titterington, St. Louis, presented by the latter.

These papers were discussed by Dr. O. H. McCandless, of Kansas City, with Drs. Perry and Kessler closing the discussion.

Dr. Clyde O. Donaldson, of Kansas City, took the chair during the reading of the paper on "High Voltage X-Ray Therapy: Mechanical and Physical Problems," which was presented by Dr. Edwin C. Ernst, of St. Louis.

Drs. John Kimbrough, of St. Louis, and O. H. McCandless, of Kansas City, discussed this paper briefly.

Dr. Perry brought up the matter of membership in the Association, saying that he still retained membership in a local county society in Wisconsin and wondered if this would preclude his becoming a member in Missouri. Dr. Ernst stated that since Dr. Perry was a member of the St. Louis Medical Society, he was eligible to membership both in the Missouri State Association and the Missouri State Radiological Society.

Since there was not a quorum present, the question of election of officers of the Radiologic Society was discussed. Dr. McCandless stated that purely as a parliamentary problem, the officers would automatically hold over under such circumstances.

On motion the Association adjourned *sine die*.

REPORT OF THE SECRETARY-EDITOR

The work of the secretary's office has been unusually heavy during the year. The correspondence with other medical organizations particularly regarding the referendum and in connection with organized activities grows more voluminous annually.

As you will be told in the report of the Executive Committee, the suit to prevent the Secretary of State from placing Senate Bill No. 433 on the ballot was decided against us in the Circuit Court of Cole County and our attorney has appealed to the Supreme Court.

We have conducted much correspondence on the medical practice acts of other states in order to gather information for our committee on health and public instruction on the question whether it would be wise to include the cults, such as chiropractors, osteopaths and others, in the medical practice law, limiting these persons to certain acts and prohibit them from offering service to the public which can only be rendered by medical graduates. You will have this presented in detail by the committee on public health and instruction.

The Constitutional Convention holds its meeting in this hall beginning May 15th. Although our member, Dr. M. A. Bliss, failed to be nominated as a member of the convention, he has been appointed our representative in this matter and if it is your wish that he should attend the sessions of the convention, some action should be taken to give him that authority. It appears probable that a representative from our Association should be authorized to watch the proceedings of the convention in order to guard against objectionable clauses appertaining to the public health and the practice of medicine.

The American Medical Association has employed a field secretary whose duty it will be to visit the state associations and endeavor to bring about a closer relationship between the state organizations and the American Medical Association.

Nearly all the county societies are functioning with satisfactory activity, but a few of them are not doing so. The Councilors can bring these societies into full activity with a little attention and visiting during the year.

THE JOURNAL has continued to grow in influence and is being used as a medium for the papers read before the St. Louis Medical Society and a good many county societies and numerous members are sending their papers read before other bodies, so that we may feel gratified with the interest that the members are showing in building up the state Journal. During the year we lost some large advertising contracts due to a change of plan on the part of such advertisers, some of them saying they could get better results by circular letters to our members than they can get by advertising in THE JOURNAL. We should always remember that the advertisers are selected with great care and that they deserve the first call from us when we are in the field to purchase supplies advertised in THE JOURNAL.

For the first time in many years the total number of members is less than in the preceding year, but only 27 less than we had last year. A large number of members were dropped for non-payment of dues at the beginning of this year on account of the increase in dues, the county societies feeling that they wanted to begin with a clear slate under the new amount for annual dues. The increase in dues has not of itself caused the loss of more than half a dozen members by resignation and refusal to pay the \$5.00 dues. At this time there are 2,085 members paid up for 1922, which corresponds very closely to the number paid up at the time of our meeting in 1921. Under the provision that \$1.00 be appropriated to the legislative fund this will start the fund with \$2,085.

We lost one delegate to the American Medical Association because the membership figures carried by the American Medical Association do not agree with the figures I report to them. The secretary of the American Medical Association claims that he had dropped 30 names from our roll because they had removed from the state for more than one year and were practicing in their new location, which according to the by-laws of the American Medical Association deprives them of membership in their original state. In spite of this reduction, my figures were sufficient to retain our five delegates, but I was not able to convince the secretary of the American Medical Association of our right to the fifth delegate. I have talked with the secretary of the American Medical Association and Dr. Simmons, the general manager, on this subject and I am still hoping that we may convince them that our figures are the ones that should count and not the American Medical Association figures, unless they can show good reason for the discrepancies.

The following table shows the present status of our membership:

Membership	
Number of members April 1, 1921.....	3,533
New Members	187
Members Reinstated	8
	3,933
Resigned	12
Transferred	15
Dropped	152
Deceased	43
	222
Number of Members April 1, 1922.....	3,511
Decrease	27

Respectfully submitted,

E. J. GOODWIN,
Secretary-Editor.

REPORT OF THE COMMITTEE ON DEFENSE

The Committee on Defense had on file at the beginning of the year 1922, twenty-nine malpractice suits against members of the Association. During the year eighteen new suits have been added, making a total of forty-seven cases. Of this number, seven suits have been disposed of, leaving forty suits still on file.

Three cases were forced out of court or dropped. There were two verdicts in favor of the defendant, one of which had been carried to the supreme court with a final unanimous verdict for the defendant. One case in which two doctors were sued jointly resulted in a verdict of one dollar in favor of the plaintiff. In one suit, a verdict was returned in favor of the defendant but the cost of the suit was paid by the defendant.

During the year several members have consulted the committee concerning suits and threats which, for different reasons, have not materialized. The committee endeavors to keep accurate record of all cases, their progress and final disposition and urges the members to keep the committee informed of the progress of their case and to notify them of final settlement.

RUDOLPH S. VITT,
ROBERT E. SCHLUETER,
CHAS. E. HYNDMAN, Chairman,
Committee on Defense.

REPORT OF THE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION

The legislative activities of this committee were ended under the committee of last year when the legislature adjourned and the governor approved the malpractice law, signed the Optometry and Medical College Bills, and vetoed the Hospital and Chiropractic Bills. The work on the referendum of the Medical College Bill will be reported by your Executive Committee.

Whoever serves as chairman of this committee during the coming year must expect to face in the legislature another series of bills from people who wish to be labeled "doctor" by the state and have a legal right to the title "doctor" before the people, without spending either the time or the effort to master the study of disease and learn the principles underlying individual health and public health. In other states the state medical association has refused to stand responsible for laws regarding the treating of the sick. In Missouri, we as a Society have taken this responsibility upon ourselves—have de-

fended the people of the state from fraud. We have done so for many years. We have made hospitals better and have placed on our statute books laws requiring all who treat the sick to be qualified for their work by education and experience.

By some curious twist in the minds of our people, our lawyers, our courts, and some of the members of our own profession, they have come to believe that we are entirely selfish in our efforts; that we are trying to better our own condition only, and that we are unjust to all "special practitioners" who seek special laws under which to operate. We are in this light with the public today and it is as bad as it is untrue. So this body today should advise this committee, after a free discussion, which course the Missouri State Medical Association will adopt before the coming legislature which meets this winter. Shall we stand in the future as in the past, opposed to every form of special law for the treatment of disease? Shall we ask for a uniform qualification in intelligence and education to all who treat the sick, or shall we disclaim all responsibility for the practice acts on our statute books and leave the matter to the legislature? Your committee asks discussion and instruction as to their course.

The question of nursing should be considered. The present law does not permit the teaching of nursing for a degree of R.N. in any hospital containing less than fifty beds. The hospital must also show a fair percentage of obstetrics, children's diseases, and medical cases. The use of outside cases, bedside nursing in the homes, is forbidden. The hospital must in fact be a metropolitan hospital before its graduates can be called "nurses." The counties of Missouri, operating under the present law, are establishing county hospitals. They contain thirty to forty beds. The entire local profession is their staff. They are caring for most of the sickness of the county in which they exist. The young women of the neighborhood, of the county, should study nursing in these local hospitals, after graduating from their local high schools. That seems logical. It has happened in Nevada, in Columbia, and in other country towns and the nurses are satisfactory; more satisfactory sometimes than a strange nurse from the city. Under the new rule of the Nursing Board such local hospital graduates must not be called nurses, but "Licensed Attendants." They cannot register as nurses, R.N., but as L.A. This it seems they will not do. So while the graduates of the metropolitan hospital are our only visible supply, they are taking the name "Nurse" to the laboratory as a technician; to the doctor's office as an assistant; to the state or school as public health workers; to the great factories where they do physical examinations as inspectors, and so forth. All this is higher development of women's work; it is desirable and should be encouraged, but must such operations monopolize the name nurse? Cannot the woman who learns the work of nursing the sick in her local hospital be a nurse also? Must everyone who is to nurse the sick qualify for this higher work? The State Medical Association and the State Board of Nurses should get together on this very practical matter.

Respectfully submitted,

H. E. PEARSE, Chairman.

REPORT OF COMMITTEE ON HOSPITALS

There has been a tendency all over the state for hospital staffs to push the work of organizing for better service. Those hospitals that possess organized staffs and keep written records and otherwise attempt to meet the standards of the American College of Surgeons and the American Medical Association all unite in reporting much better service to the patients and a better atmosphere and better condi-

tions in the hospital. Most of the large hospitals of Kansas City and St. Louis have gone forward in this direction, while St. Mary's Hospital at Jefferson City, St. John's Hospital in Joplin, and the County Hospitals of Boone County, Audrain County and Calloway County are in all respects meeting the standards. St. Joseph, under the County Society's committee, is taking its first steps.

The good work of the hospital is in direct relation to its own initiative. By this is meant that there is not found the same degree of excellence in hospitals whose management imposes the rules upon its staff as is found where the staff itself sets the standard, makes the rules for its own government and lives up to them.

There should be more work done on the small hospitals of the state. There are many one-man organizations that seem to be supplying a real need. If found valuable they should be encouraged. Altogether, the outlook is encouraging. Every county that has a hospital should have a hospital committee and should keep the county medical society in touch with the hospital. This plan has worked well when tried.

H. E. PEARSE, Chairman.

REPORT ON MEDICAL EDUCATION

Medical education in America has been a peculiar process of evolution. It started with the apprentice system which kept its votaries at the prosaic task of mixing drugs for the polypharmacy which was so popular in the 18th century, sweeping the office of the preceptor, assisting him at labor cases and doing minor dressings under his direction.

While Harvard College opened its doors in 1630, education of physicians was in the hands of private practitioners. Until 1750 no schools were opened nor any systematic course of medical lectures given in America. Chemistry was not taught, but a crude idea of drugs and mixtures was gained by the empiric method of the day. The student could learn his anatomy by observation of the patient who came to be treated. As for physiology, some of the patients served also for material. There was no clinical opportunity otherwise available.

Such text-books as could be found were read at intervals when the student found leisure. While such a system developed the rugged virtues of the young doctor neophyte, and many of these apprentices became adept in their practice and were skillful in their generation, its defects were apparent, for the problems of the next generation were not understood nor was any discovery of new methods of treatment or prevention of disease.

The first medical college to be chartered in the United States was the College of Philadelphia, which gave lectures in the principles and practice of medicine and offered some opportunity to study anatomy in connection with the surgery. The Philadelphia Hospital, one of the founders of which was Benjamin Franklin, provided the clinical material for the college. This was supplementary to not a substitute for the apprentice system. For a long time the colleges chartered followed the same general aims. The fundamental sciences had scarcely any attention even in the didactic lectures. It was only rarely that the exceptional youth was lucky enough to have a year abroad to round out his training before entering upon a career of his own.

Dr. Lewellys Barker, in a very interesting paper recently published, speaks of the development of specialists which, as he says, only was made possible by the advent of modern scientific medicine. Primitive medicine, a sort of medical folk lore, needed no specialization, as it covered the whole field of treatment without discrimination. There

was no diagnosis and no therapeutics needed for the driving out of demons nor the fighting of black magic with white magic.

Certain pictures of gross diseases were early appreciated and a special physician was selected to treat each one, not as a specialist today but as a doctor against that particular plague. As far back as the time of Galen in the second century, A. D., many men devoted their attention to special conditions; there were surgeons for fistula, for the eye, tooth doctors, rupture doctors.

Neither in the 17th century, which was characterized by its individual endeavor, nor in the 18th, which was clouded with theories of disease, was there any advanced technique in any degree comparable with the definite special work which had to be built on the foundation of biology, physics and chemistry. These were only developed with the advance of the rational sciences in the 19th century.

Barker says that we now recognize in addition to the three great fundamental groups—surgery, internal medicine and obstetrics—seventeen other specialties in medicine.

Now how can medicine be taught to the utmost advantage in such a condition of teaching as we have today?

Modern medical education has had a great problem which must be solved; that is the closing of the gap between the premedical and the clinical studies, says Canby Robinson, who urges that medical men should teach anatomy, pathology, chemistry and physiology to medical students instead of laboratory scientists, who are not also physicians.

The result of the wide-spreading of the two departments is that medical men are not satisfied with the general laboratory training of their students and, as explained by Mr. Warren S. Hayden, a trustee of Western Reserve University, the heads of the various services in giving estimates for their needs in the construction of the new two and one-half million dollar medical school (the building is being erected in conjunction with the new Lakeside Hospital but each is under its own administration)—are asking for a special laboratory in connection with each department of the institution, an elaboration which, if carried out to the logical degree, must become a financial burden that the university could not meet.

What is most needed today by the premedical student is the culture which is acquired by association on the campus with those who are inspired with a love of art, music and literature, and by the general environment which the busy rush of the modern great city does not afford. Then after his life on the campus which has given him an outlook from the cultural viewpoint, he is ready to go into the clinical work with far better confidence than if his entire student life had but a single experience.

We welcome his opportunity to acquire the premedical knowledge in the classroom and the laboratory, and still the medical educator has recognized the distinct swing of the schools to fall into one of two channels.

The one which has been followed in Iowa and in Michigan endeavors to bring the clinical material, which is so essential to a well-rounded medical culture, to the University campus. This can be done where conditions, as in Iowa, are favorable. Iowa is distinctly an agricultural state and has no large cities. The arrangement with county courts by which pauper subjects are forwarded to the university hospital for treatment can be accomplished in such an environment.

In Missouri we have a different problem. We have, like New York and Wisconsin, large cities

where population is centralized into areas densely packed, which always results in a large morbidity. All transportation facilities center in our cities.

On the other hand, the rapid growth of county hospitals and groups of clinic centers at the county seats absorb the material which might otherwise be congregated at the University campus.

We are fortunate in having as teaching material the rich variety of cases which through our great hospitals, like the St. Louis City and the Barnes and the Kansas City General, the latter with its wealth of material now not being utilized.

For years the Nestor of medical education in Missouri, the honored head of our committee, Dr. A. W. McAlester, has fought for the prize which is waiting to be grasped but which, on account of one political cabal or another, has been thrust aside by the officers who have had the authority to seize it.

What are the facts about medical education in Missouri? Years ago the State University abandoned the third and fourth years because of the need of holding up the standard required to remain on the Carnegie Foundation, and it was plain that this could not be done with a medical college lacking the clinical material necessary to supply it. Well knowing that it could never be gathered at Columbia, the Curators wisely abandoned the effort to have a great medical teaching center and have allowed their second year students to be scattered, after the best training to be found anywhere, now being given at Columbia in the freshman and sophomore years, and the junior medical student of our great State University becomes a wanderer on the face of the educational earth, seeking an abiding place which he may call his own.

Why should we not have a great medical school in connection with the State University? We have the culture at Columbia where in the premedical and early years of the life of the student he has a foundation to be envied, but there is no cohesion to be found because the final years must be spent in and accredited to another institution.

Now the state legislature has only recently appropriated a quarter of a million dollars for a new medical department at Columbia, with the same conditions for teaching clinical medicine as prevailed when the two clinical years were abandoned. Let that money be held until it can be utilized in building laboratories where unlimited clinical material is available and is not being utilized, in connection with the Kansas City General Hospital, just as Washington University has taken advantage of Barnes Hospital.

The medical school need have no expense of running a great hospital. It is already there only waiting to be used. The attempt to construct hospitals at Columbia in order to meet the requirements of the Carnegie Foundation would cost the state at least five million dollars in addition to at least a half million dollars a year for upkeep of the hospital. And the clinical material to feed the hospital is still wanting. The Wisconsin legislature have been asked by the State University for twelve millions of dollars, the larger part to be spent in new buildings. A working agreement with the Kansas City Hospital Board could readily be effected.

The University of Missouri then at once takes her place among the great universities of the nation which give medical education commensurate with its other colleges.

REPORT OF THE COMMITTEE ON PREVENTION OF BLINDNESS

The past year has been one in which the taxpayers of the state should be particularly interested, and with the events that have transpired your commit-

tee feels that it is of such vital importance that a brief resume of the act for pensioning the blind which was made possible in November, 1920, when the people of our state by a great majority adopted an amendment to the state constitution whereby the state legislature was authorized and empowered to enact such laws as might be necessary to pension the deserving blind citizens of Missouri.

The law provided that all blind persons over the age of 21, who have been residents of our state for at least ten years, and who have not an income from business, profession or estate in excess of \$780 a year, may receive from the state a pension of \$25 per month, payable quarterly.

The Missouri Commission for the Blind and the Probate Judges for the different counties in the state were authorized to receive applications from such persons. They investigate the cases appearing before them and are instructed to issue certificates upon which the state auditor is empowered to enroll such applicants upon the pension roll.

The legislature levied a tax of 2 cents on each \$100 assessed valuation of property in the State of Missouri. The state auditor's office with their usual efficiency have compiled the following data from this report:

Applications were received from 3,836 persons up to January 1, 1922, 3,659 of which had been enrolled and were ready for payment. This was, they state, far in excess of the number which the legislature had contemplated would apply. When this body made its appropriation of \$750,000 to pay blind pensions for 1921-1922, it based its calculations upon the 1920 federal census which showed only 2,244 blind persons in Missouri. To pay the 3,659 blind persons the pensions awarded them the treasury of our state was drawn upon to the extent of \$442,682.45 which left only \$307,317.55 for the blind budget of 1922. Up to the present time since January 1, 1922, 760 new applications have been received by the state auditor bringing the total to 4,596; thus we can see with the continued flow of applications the amount of extra burden in taxation will fall upon our state.

The abuses in this law as well as other pension laws are flagrant. Many instances of this abuse are matters of record in the auditor's office; viz., a married woman made application for pension. She stated, being duly sworn before a notary, that she had no income whatever from business, profession or estate, and the oculist's affidavit stated that she was sufficiently blind to come within a bona fide claim for blind pension. In looking up the facts in the case it was found this woman's husband owned property valued at many thousands of dollars and that his income was of sufficient amount to properly support her.

In talking to Dr. C. E. Baur, superintendent of St. Louis Infirmary, I find several instances in which inmates supported by the city taxpayers receive pensions from the state.

The Missouri Commission for the Blind has appointed oculists to conduct these examinations for the worthy blind applicants for pensions and they should be on the alert that only those who deserve the state's assistance should receive it, and at the same time exercise their influence with the judges of the probate court to see that the law is not abused.

The Missouri State Board of Health has conducted trachoma surveys in several counties throughout the state and have purchased a movie film on "Care of the Eyes" to be used in an educational campaign within the state.

The Child Hygiene Department of this same board has rendered valiant service as has the Division of Rural Sanitation.

The Missouri Association for the Blind has as usual led in this efficient work and we especially commend them to you.

Respectfully submitted,
EMMETT P. NORTH,
Chairman.

REPORT OF THE TREASURER

General Fund

May 15, 1921, to April 25, 1922

Receipts

Balance on hand May 17, 1921.	\$ 4,095.08	
Advertising in Journal.....	5,824.17	
Transferred from sinking fund	4,000.00	
Interest on daily balance.....	55.99	
Compiling list for Dr. Bruton..	5.00	
Amount received from County Societies	12,038.00	\$26,018.24

Disbursements

Annual Meeting	\$ 120.00	
Printing Journal	8,903.91	
Salaries	6,115.00	
Rent	540.00	
Secretary for Incidental Expenses	1,800.00	
Committees	120.19	
General Expense	207.42	
Refund to County Societies...	2.00	
Office Equipment	77.15	
Telephone	389.80	
Treasurer Allowance	200.00	
Transferred to Legislative Fund	2,085.00	
Referendum	2,041.85	
	\$22,602.32	

Balance April 25, 1922.... 3,415.92 \$26,018.24

Defense Fund

Receipts

1921		
Balance May 17.....	\$3,048.58	
Interest on Daily Balance.....	81.99	\$3,130.57

Disbursements

1921		
Dec. 6. Dr. H. Miles.....	\$ 100.00	
1922		
Jan. 11. Dr. Montgomery	50.00	
Feb. 2. Dr. R. E. Schlueter....	30.35	
Mar. 17. Morton Jourdan	150.70	
Apr. 11. Dr. L. E. Rolens.....	50.00	
Apr. 11. Dr. F. M. Rolens.....	50.00	431.05
		\$2,699.52

Sinking Fund

Receipts

1921		
May 17. Balance on hand.....	\$7,236.38	
1922		
Apr. 25. Interest on daily bal..	143.19	\$7,379.57

Disbursements

1921		
Sept. 19. Transferred to General Fund	\$2,000.00	
Nov. 30. Transferred to General Fund	2,000.00	\$4,000.00
Balance		\$3,379.57

Legislative Fund

1922		
Apr. 25. Transferred from General Fund..	\$2,085.00	

SUMMARY OF CASH BALANCES APRIL 25, 1922

General Fund	\$ 3,415.92
Defense Fund	2,699.52
Sinking Fund	3,379.57
Legislative Fund	2,085.00
Grand Total	\$11,580.01

MEMBERS REGISTERED AT THE SIXTY-FIFTH ANNUAL MEETING

Jefferson City, May 2, 3, 4, 1922

- Amos, O. E., Jefferson City.
- Arbuckle, M. F., St. Louis.
- Ard, G. P., Jefferson City.
- Aufderheide, Frederick, Centertown.
- Austin, M. B., Brunswick.
- Bailey, Fred W., St. Louis.
- Barclay, Robert, St. Louis.
- Barks, W. H., Perryville.
- Barnhart, D. A., Huntsville.
- Baumgarten, Walter, St. Louis.
- Baysinger, S. L., Rolla.
- Bazan, L. A., Moberly.
- Beattie, T. J., Kansas City.
- Belden, W., Columbia.
- Bellows, G. E., Kansas City.
- Bliss, M. A., St. Louis.
- Bohan, P. T., Kansas City.
- Bonham, V. Q., Fayette.
- Booth, David S., St. Louis.
- Bowles, S. A., Westphalia.
- Breuer, William H., St. James.
- Brickey, Paul A., Boonville.
- Brummall, J. D., Salisbury.
- Brunner, E. E., Farmington.
- Burford, C. E., St. Louis.
- Bedford, S. V., Jefferson City.
- Burke, John P., California.
- Byrne, John I., St. Joseph.
- Callison, E. C., Kirksville.
- Campbell, Albert J., Sedalia.
- Chaffin, Elizabeth, Fulton.
- Chastain, C. H., Weston.
- Clapp, C. B., Moberly.
- Clark, W. A., Jefferson City.
- Clements, Edward B., Macon.
- Cochran, O. W., Overton.
- *Connaway, J. W., Columbia.
- Conrad, Harry S., St. Joseph.
- Cook, F. L., Independence.
- Cooper, J. O., Jefferson City.
- Crider, A. J., Dixon.
- Cuppaidge, G. O., Moberly.
- Dallas, Hugh G., Jefferson City.
- Davis, J. C. B., Willow Springs.
- Davis, P. C., Madison.
- Dennie, R. B., Creve Coeur.
- DeVilbiss, E. F., Kansas City.

*Visitor.

- Dixon, C. H., Moberly.
 Donaldson, Clyde O., Kansas City.
 Dorris, R. P., Jefferson City.
 Draper, T. J., Warrensburg.
 Dysart, W. P., Columbia.
 Eggers, G. C., Clayton.
 Enloe, Cortez, Jefferson City.
 Enloe, L. David, Jefferson City.
 Ernst, Edwin C., St. Louis.
 Falk, O. P. J., St. Louis.
 Fassett, Charles Wood, Kansas City.
 Ferguson, A. D., Fulton.
 Ferguson, W. J., Sedalia.
 Frischer, Julius, Kansas City.
 Funkhouser, Robert M., St. Louis.
 Gebhart, Oliver C., St. Joseph.
 Gillham, Frank W., Jefferson City.
 Goodwin, E. J., St. Louis.
 Gove, H. S., Linn.
 Gorham, Frank D., St. Louis.
 Gradwohl, R. B. H., St. Louis.
 Gunn, A. J., Versailles.
 *Gunn, W. G., Versailles.
 Hall, C. Lester, Kansas City.
 Hall, T. B., Marshall.
 Hall, J. R., Marshall.
 Hamel, A. H., St. Louis.
 Hanning, M. C., Humphreys.
 Harrison, J. F., Mexico.
 Hawkins, G. W., Salisbury.
 *Huelsmann, Leo C., Colorado Springs, Colo.
 Hill, Roland, St. Louis.
 Hill, Jas. A., Jefferson City.
 Hornback, J. T., Nevada.
 Hough, Chas. T., Jefferson City.
 Howard, S. P., Jefferson City.
 Hunt, Claude J., Kansas City.
 Hurford, P. G., St. Louis.
 Hyndman, Chas. E., St. Louis.
 Jackson, Jabez N., Kansas City.
 James, R. M., Joplin.
 Johnson, Wm. E., Warrensburg.
 Jones, Geo. H., St. Louis.
 Kampschmidt, A. W., Columbia.
 Kerr, H. L., Crane.
 Kessler, E. H., St. Louis.
 Kieffer, Alonzo R., St. Louis.
 Kimbrough, John S., St. Louis.
 Knott, Minerva, Sedalia.
 Kouns, D. H., Tuscumbia.
 Kuhn, H. P., Kansas City.
 Lamb, H. D., St. Louis.
 Lavender, C. L., Marthasville.
 Latham, Logan L., Latham.
 Leach, H. T., Elston.
 Leighton, W. E., St. Louis.
 Lichtenberg, Jos. S., Kansas City.
 Long, Frank B., Sedalia.
 Longacre, C. E., Linn.
 Love, Joseph W., Springfield.
 Love, J. E., Sedalia.
 Lyter, J. Curtis, St. Louis.
 McAlester, A. W., Columbia.
 McAlester, A. W., Jr., Kansas City.
 McCallum, F. M., Kansas City.
 McCandless, O. H., Kansas City.
 McComas, A. R., Sturgeon.
 McCubbin, J. B., Fulton.
 McGuire, M. S., Arrow Rock.
 McKay, H. S., St. Louis.
 McVay, James R., Kansas City.
 Major, Hermon S., Kansas City.
 Maples, F. H., Fulton.
 Mansur, E., Jefferson City.
 Meyer, L. A. T., Wardsville.
 Milne, L. S., Kansas City.
 Miller, Enoch H., Liberty.
 Miller, R. H., Clarksburg.
 Miller, Wade Hampton, Kansas City.
 Meredith, A. L., Prairie Home.
 Moody, Ellsworth E., Joplin.
 Moore, Neil S., St. Louis.
 Moore, J. G., Mexico.
 Moore, H. M., St. Louis.
 Montgomery, James G., Kansas City.
 Mount, R. L., Polo.
 Murray, S. A., Holden.
 Murphy, Franklin E., Kansas City.
 Neilson, C. H., St. Louis.
 Nifong, Frank G., Columbia.
 Norris, W. A., Columbia.
 North Emmett P., St. Louis.
 Noyes, Guy L., Columbia.
 Oliver, Everett A., Richland.
 Overholser, M. P., Harrisonville.
 Ockerblad, Nelse F., Kansas City.
 Popp, Edward M., Altenburg.
 Pare, E. Y., Luton.
 Park, Henry C., Knobnoster.
 Parrish, J. S., Pleasant Green.
 Paulette, A. W., King City.
 Pearce, Herman E., Kansas City.
 Person, R. C., Maryville.
 Potter, Caryl, St. Joseph.
 Pierce, R. P., Triplett.
 Ragan, S. T., Moberly.
 Reder, Francis, St. Louis.
 Redman, Spence, Platte City.
 Ridge, Frank I., Kansas City.
 Robinson, G. Wilse, Kansas City.
 Russell, C. W., Springfield.
 Russell, R. L., Jefferson City.
 Sanders, St. Elmo, Kansas City.
 Saunders, L. E., Stewartsville.
 Schlueter, Robert E., St. Louis.
 Schofield, L. J., Warrensburg.
 Shelton, E. C., Eldon.
 Sherwin, Charles F., St. Louis.
 Shy, D. E., Sedalia.
 Simpson, Lloyd, Columbia.
 Singer, Jacob J., St. Louis.
 Skinner, E. H., Kansas City.
 Smith, Clinton K., Kansas City.
 Spotts, B. M., Marshall.
 Summers, J. S., Jefferson City.
 Taylor, Herbert, Jefferson City.
 Thompson, Ralph L., St. Louis.
 Thornton, J. E., Columbia.
 Titsworth, Guy, Sedalia.
 Titterington, P. F., St. Louis.
 Tupper, Paul Y., St. Louis.
 Twyman, Tom, Independence.
 Tyree, Jas. I., Joplin.
 Unterberg, H., St. Louis.
 Van Ravenswaay, Boonville.
 Vitt, R. S., St. Louis.
 Walker, G. D., Eldon.
 Wallace, Charles H., St. Joseph.
 Waterman, J. A., Jefferson City.
 West, Wm. M., Monett.
 Welch, J. Franklin, Salisbury.
 Williams, W. H., Mokane.
 Williams, P. E., Nevada.
 Wood, N. P., Independence.
 Woodruff, F. E., St. Louis.
 Woodson, C. R., St. Joseph.
 Wright, J. B., Trenton.
 Yancey, E. F., Sedalia.
 Young, H. McClure, St. Louis.
 Zahorsky, John, St. Louis.
 Total, 197.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Seventh Meeting, April 10, 1922

1. PRESENTATION OF CASES.

A. GENERALIZED BLASTOMYCOSIS FROM WHICH BLASTOMYCES HAVE BEEN ISOLATED.—By DR. W. H. COLE.

A. B. S. White male, age 26. C. C. Sores on back. Abscess of neck. Feels weak. F. H. neg. P. H. neg. Denies lues. Been working as a coal miner for past two years.

P. I. One year ago patient mashed the fourth finger of right hand. The resulting ulcer failed to heal. Shortly afterward he noticed pain in lumbar region. A few weeks later a lump appeared here which was opened by a physician. The sinus has drained ever since. About nine months ago he noticed numerous pimples over the back of neck. Shortly afterwards developed crops of pimples on back of buttocks. Lump appeared among the pimples and was incised by physician. Abscess of jaw developed three weeks ago. Has been very weak since onset. Mild cough with expectoration is constant.

Phy. Exam. Temp. 37.6. Pulse 100. Respirations 22. B. P. 95/60. Moderately emaciated and anemic. Over the occipital region, left scapular region, left posterior thorax, and right buttock are skin lesions varying from 12 to 18 cm. in diameter. Each lesion has an irregular cauliflower-like surface. The base is reddened and elevated. The center of some show scarring of recent healing. Mild discharge but no deep ulceration. Just to the left of the 5th lumbar vertebra is a mass of granulations (2 cm. in diameter) with a draining sinus in the center. *Head*.—Pupils are normal. Over the right jaw is a huge fluctuating swelling (quite certainly containing pus) extending from the origin of the temporal muscle to the edge of the mandible. *Thorax*.—There is slight impairment of P. N. over right upper posteriorly. B. S. are harsh throughout. Few sonorous and crepitant rales heard on each side. *Abdomen*.—Liver is enlarged 4 F. B. below C. M. and is tender. *Genitalia*.—Discharging sinus noted over right epididymis which is distinctly enlarged and thickened. *Extremities*.—Chronic paronychia of fourth finger of left hand.

Laboratory data.—R.B.C. 4,610,000. W.B.C. 20,000. Hg. 85. Urine negative except that a few doubly contoured bodies resembling blastomyces were seen. Culture not completed. Blood Wassermann is negative. Pus obtained at incision of abscess of jaw revealed only a streptococcus. Sputum shows no tubercle bacilli but numerous doubly contoured bodies. Culture for blastomyces not completed. Culture* from incision of a minute abscess on neck under sterile precaution produced an almost pure culture of blastomyces.

DISCUSSION

Dr. George Dock: There is one thing I would like to discuss about this case. It has twice been spoken of as a case of possible lupus. Lupus is so rare here that many of us seldom see it, but it so happened that I lived for a long time where it was very common and we always had examples in the wards. It practically never shows condi-

tions such as this patient did when he first came to the hospital. It never produces such very large thick tumors. Another suggestion was that it was tuberculosis verrucosa, but in that the verrucosities are very striking and there is rarely as much granulation tissue as there was in this case. The first suspicion in all such cases must be of some granulation tumor, which can best be diagnosed by the examination of microscopic sections.

Dr. Geo. Ives: Is that a mycelium or a budding organism under the microscope? Are you sure it is not a contaminating yeast? I was under the impression that true blastomyces formed mycelia when cultured. How long did it take the organism to appear on the plate which is being passed around?

Dr. W. H. Cole: It is a budding organism. There are several strains of the organisms. Ricketts has described at least four or five different ones, all of which do not form mycelia, especially upon their first culture. The organism appeared on the plate in about three days.

Dr. Ives: I should think that would be quite a short time for the organism of blastomycosis to produce a visible colony, and further I do not believe that you have excluded the possibility that you have a wild yeast in the culture.

B. A CASE OF ANEURYSM OF THE DORSALIS PEDIS ARTERY.—By DR. COPHER.

Register No. 22,894. W. M. White male, 68 years of age. July, 1919, patient fell from a wagon loaded with iron and a wheel of the wagon passed over his left foot, which immediately became discolored, swollen and painful. On the following day the patient noticed that the mass on his left foot "moved up and down." Following the injury three sinuses developed and drained for about one month, one of them directly over the tumor. Patient has not worked for the past year and a half because of pain in foot on walking.

Examination showed a soft, expansile, pulsating mass over the metatarsal region of dorsum of left foot. No redness or tenderness or increase of local heat. The mass was about the size of an orange. Circumference of foot over tumor mass, 39.8 cm.; of the right foot, 22 cm. Compression of anterior tibial artery markedly reduced pulsation of the mass. Compression of posterior tibial had much less effect. Compression of the posterior and anterior tibial arteries obliterated the pulsation and the sac could be emptied. Release of the dorsalis pedis artery resulted in the rapid filling of the tumor. Oscultation revealed a sharp whistling bruit during systole. No evident circulatory disturbance of toes. There was almost an entire loss of motion in the 2nd and 3rd left toes. The extensor hallucis longus tendon ran over the medial portion of the mass. No sensory changes over the foot. Blood pressure readings of each leg the same. Temperature between the great toe and second toe, right 28.5 C.; left, 30.5 C. Blood Wassermann negative.

X-ray shows a marked separation of the first and second metatarsal with upward dislocation of the latter. The third metatarsal is almost entirely destroyed.

On operation (by Dr. Brooks) the dorsalis pedis artery was isolated and excision of the sac in toto attempted. This was found impractical, so it was opened after placing a tourniquet about the ankle. It was about three-fifths filled with clot. The wall of the aneurysm was found to consist partially of bare bone of the first and third metatarsal. Point of entrance of the dorsalis pedis was located and the artery ligated at its entrance into the sac. Only

*Further cultural characteristics were revealed two days after report at the Society meeting. The organisms grew equally well on glucose agar and blood agar and consisted almost entirely of budding forms. Transplant to glucose and blood agar and incubating at room temperature produced a culture consisting almost entirely of mycelia, whereas transplant to the incubator produced a budding form.

two other vessels were found in connection with the aneurysm. These were ligated and the sac was excised. The skin was closed over and compression applied to obliterate the dead space. This space filled with blood clot and healing has taken place per primam.

There has been a small area of superficial necrosis at the intersection of the T-shaped skin incision. The patient now has no pain and bears some weight on the foot.

Dr. Brooks has seen another such case at the Johns Hopkins Hospital. I have been unable to find a report of a similar case.

DISCUSSION

Dr. Barney Brooks: This case is shown on the account of its extreme rarity. At operation a sacular aneurysm was found springing from the deep plantar branch between the dorsalis pedis and plantar arch. The communication between the aneurysm sac and the artery from which it sprang was a small hole. As in all traumatic aneurysms no branches came off from the wall of the sac. The complete excision of the aneurysm, it seemed to us, would not in any way endanger the circulation of the foot.

C. CHRONIC MYELOGENOUS LEUKEMIA, WITH UNUSUAL TUMOR FORMATION OF BONES.—By Dr. S. JOHN HOUSE.

This young man presented himself to Barnes Hospital in May, 1921, with a tumor and pathological fracture of the left humerus and with a blood picture of myelogenous leukemia; white blood count 320,000.

The exact nature of the tumor was not known, but thinking that it might be malignant an amputation was done. Sections showed the tumor to be a collection of cells resembling that found in other portions of the bodies of people with myelogenous leukemia. Following amputation the leukemia was treated by X-ray and benzene (benzol) and the patient responded nicely to the treatment.

In October, 1921, the patient returned with tumor nodules in the amputation scar. These were excised.

Patient was readmitted March, 1922, with a recurrence of the nodules in the scar and pectoral tissues and a clinical exacerbation of the leukemia.

X-ray treatments have about cleaned up these nodules; X-ray of other bones shows a very remarkable picture. There is distinct tumor formation in the neck of the left femur, left tibia and both innominate bones; the cortex of practically all long bones is markedly thinned out.

Now, in this case, it is not entirely clear whether we are dealing with a primary myelogenous leukemia with these unusual medullary tumors, or whether the leukemia is secondary to the multiple tumor formation.

Former skeleton X-rays are negative for such tumor formation. There has been at no time Bence-Jones proteinuria.

DISCUSSION

Dr. Barney Brooks: At the time this patient entered the hospital the spleen filled the entire left half of the abdomen. The examination of the blood showed the typical picture of myelogenous leukemia. The arm was amputated for a painful pathological fracture of the humerus. The extent of the destruction of the bone and the severe pain which it caused led us to advise amputation, although we

had no idea of this influencing the progress of the disease.

D. CARDIAC ANEURYSM COMPLICATED WITH CHRONIC MEDIASTINO-PERICARDITIS; POST-MORTEM FINDINGS.—By DR. ELSWORTH SMITH.

R. V., male, white, age 42 years, miller by occupation. Entered our service at Barnes Hospital October 10, 1920, complaining of dyspnea and pericardial pain of about 18 days' duration. Family and previous history unimportant. Seized suddenly May 25, 1920, with agonizing pericardial pain requiring morphin freely hypodermically. Ill three and one-half weeks with fever, very rapid respiration, reaching at times 60 per minute, with persistence of pericardial pain more or less constantly, pointing to the occurrence at that time of coronary infarct, which resulted later in the aneurysm. After this experience no symptoms until September 28, 1920, when, after physical effort, felt some return of the dyspnea and pericardial distress, and at the time physical examination disclosed a most anomalous location of apex beat in the 4th instead of in the 5th intercostal space $15\frac{1}{2}$ cm. to left of median line, there being only a very feeble impulse in the 5th intercostal space. Slight systolic retraction of left 4th intercostal space at right of impulse; also of left 10th and 11th intercostal spaces posteriorly (Broadbent's sign). Dullness extended 4 cm. to left in 2nd intercostal space while it was 11 cm. in the 3rd, so that the transverse diameter of the organ was greatly increased in the 3rd and 4th intercostal space giving its peculiar outline as though there was a bulging upwards of the heart's contour. The heart's dullness also appeared fixed, not changing with change in the position of the patient. Fluoroscopic examinations and skiagrams confirmed these physical signs. A bulging upward of the heart wall could be distinctly seen and attached to this bulging wall appeared a strong band of adhesions extending to left thoracic wall at site of costochondral articulations of left 4th, 5th and 6th ribs. Electrocardiograms furnished no additional information. The blood Wassermann test was negative.

The antemortem diagnosis of cardiac aneurysm was based on, first, the history of the attack due to the occurrence of coronary thrombosis and infarct; second, the persistence of symptoms of cardiac weakness; third, the presence of two points of cardiac impulse; fourth, peculiar cardiac outline as evidenced by physical and X-ray examinations.

The diagnosis of chronic mediastino-pericarditis was established, first, on fixation of outline of cardiac dullness; second, the presence of Broadbent's sign; third, X-ray demonstration of bands of adhesions as previously described.

Patient remained under treatment for six months and during this time there seemed to be no improvement in the circulatory system. We had finally recommended cardiolysis with the object of relieving the heart from its tight harness of adhesions that its contractions might not thus be handicapped, and also to remove the tugging effect of the adhesions on the aneurysmal sac. But, while arranging for this operative procedure, patient expired in a sudden attack of heart failure. Post-mortem findings confirmed the clinical diagnosis in the presence of an aneurysmal tumor in the anterior wall of the left ventricle near the apex, measuring about 7.5 cm. by 7.5 cm. which had not ruptured. The chronic mediastino-pericarditis was found exactly as determined in our X-ray study. An extensive chronic pigmented colitis was also disclosed.

Conclusions.—1. The history, physical signs and X-ray findings developed in this case may, we trust, throw a few additional rays of light for the future recognition of these obscure conditions. 2. After full explanations to the patient, cardiolysis may be justifiably proposed, for the persistent tugging of adhesions will break down cardiac compensation as surely as will a bad valve lesion. 3. In the absence of other tangible etiologic cause for the cardiac aneurysm and the chronic adhesive pericarditis in our case, might the chronic colitis have led to the coronary thrombosis and the pericardial adhesions?

DISCUSSION

Dr. J. J. Singer: The use of pneumothorax in this condition was suggested on account of the many beautiful demonstrations of adhesions in the lungs given by this method. For years pneumothorax was used only for therapeutic purposes; it has recently been found that it can be used for diagnostic purposes as well. The adhesions were seen very clearly in this case, but not as clearly as was thought possible if a pneumothorax were done. In introducing the needle for pneumothorax I put it near the apex of the heart. Thinking the needle was clogged I attached a syringe and got out 10 c.c. of pus. I thought the condition was an interlobar empyema, so I again inserted the needle and tried to aspirate more pus, but could not. The only thing that I wanted to discuss about this case is the pneumothorax side of it. With the use of pneumothorax one can find out things not possible by other means. Very frequently it can and does show adhesions very clearly.

Dr. George Dock: I agreed with Dr. Smith in the diagnosis and also with the plan of treatment, basing this on the principle, What would you do if you had a similar condition? Patients with infarcts of the heart usually do not live long but, on the other hand, if they recover from the softening, have good coronary circulation and function is not otherwise impaired; they may live many years in apparent good health. I have seen one case where the conditions were very clear and the patient lived twenty years between the beginning of the infarction and the failure of compensation, with a very large fibroid patch. This patient's mode of death introduces a very important point in all questions of surgical treatment in people with serious disease of the heart. He died by accident, as often happens in patients with heart muscle disease or coronary disease, just after a rather large dinner. If he had been taken to the operating room without the dinner, a similar accident might have happened. These things should be clearly explained to everyone concerned, not so much to protect the surgeon as to protect the operation. Such accidents are likely to discourage people who need operations and would go through them without trouble. One point Dr. Smith did not enlarge upon was the finding of so-called pus. I raise a question whether it was pus. It might have been or it might have been turbid fluid as a result of a nonpurulent process in the pericardium. I would like to insist that nothing should be called pus unless it has been examined microscopically and then the definite features should be stated.

DISCUSSION

Dr. A. E. Strauss: There are several features of Dr. Smith's case that are very interesting, such as the association of the cardiac aneurysm with the pericarditis, and the X-ray findings. As a rule in mediastino-pericarditis we have a very marked limitation in the cardiac capacity, and in association with that limitation we often find very few signs.

Dr. Smith was very fortunate in this case in that he was able to see during life such definite evidence of pericardial adhesions. Such a condition is always to be thought of, and possibly even diagnosed, in the absence of other findings, where one gets marked limitation of the cardiac reserve with very few signs to account for it. The question as to whether cardiolysis would have been valuable in this case is very doubtful in my mind in view of the autopsy findings. We saw a very marked sclerosis of the left coronary artery which made the blood supply of that ventricle extremely limited. Even though the adhesions had been removed by operation, the diminished blood supply would not have been sufficient to have maintained adequate circulation, and there would have remained marked limitation of cardiac reserve. It might have been of interest to know whether death was due to further obliteration of the coronary vessels by thrombus or otherwise, or, as Dr. Smith says, whether it was due to the giving out of the already weakened cardiac muscles from overstrain.

Dr. Elsworth Smith: I am very grateful for the points that have been brought out in this discussion. The point made about indication for operation in this case is a very good one. As Dr. Dock has said, occasionally these patients live a long time, and it is very hard to determine which will live and which will not live. I believe if we had operated early in this case it would have been better. I have been interested in this operation of Brauer for a long time. As far as I have been able to ascertain, it has in a large number of cases unfortunately been done too late. I think that if a diagnosis could be made earlier it would be a great help if not almost a cure. When this man came in he wanted to have anything done, even when we told him we could not promise results. He died, as shown by the autopsy findings, from heart failure due to cardiac strain. He had, of course, no rupture; it was simply the pulling on the already crippled myocardium that finally killed him.

In regard to the finding of pus, I went over the clinical history very carefully and I did not find any record of pus in this case. Perhaps Dr. Singer has some further information in this respect.

Dr. Singer: My reason for believing that it was pus is that I had it in my syringe and I took it out myself. My intern took it to the laboratory. It was examined microscopically and found to be pus.

2. CLINICAL TETANY BY FORCED RESPIRATION.—By DR. ALFRED GOLDMAN.

At a previous meeting of this Society it was shown that tetany could be reproduced in a normal subject experimentally by forced respiration. So far as is known there are no reported cases of tetany due to accidental, involuntary or pathological overbreathing. I have collected 11 cases of clinical tetany associated with such hyperpnea.

Three cases occurred during an acute disease. One of these was a case of acute gall-bladder disease during a severe attack of which the patient would violently over-breathe and develop carpopedal spasm, positive Chvostek and Trousseau. Patient, after his first two attacks, subsequently over-breathed purposely because the hyperpnea with resulting tetany distinctly lessened the severity of his pain. He had five or six attacks in all.

Another case occurred in an influenza patient, who at times during her illness felt that she could not get her breath fast enough and so would over-ventilate.

The third case occurred in a patient with acute

laryngitis. Two of the cases occurred in hysterical individuals. For no obvious reason they would become hyperpneic and develop marked tingling of hands and feet with carpo-pedal spasms. Subsequently the tetany disappeared as the hyperpnea ceased.

The sixth case was associated with nausea and fullness. For several hours following a heavy meal patient became nauseated, overrespired and soon developed typical tetany, and the more intense the spasm became the more the patient over-breathed, so that she soon had the tingling and partial rigidity of all muscles of the body. When she was told to stop deep breathing she began to relax, and shortly after vomited a considerable amount of fluid.

Alveolar carbon dioxide, blood and urine chemical studies showed typical findings.

Five cases occurred during and following a class fight, all in men in poor physical condition. They became hyperpneic, and after 10 or 20 minutes of over-breathing developed carpo-pedal spasms which subsequently disappeared.

In none of the cases observed was there any evidence of latent tetany.

The tetany of forced respiration is due to an alkalosis. Carbon dioxide is washed out of the alveolar air and thus out of the blood. In order to keep the Ph of the blood constant, sodium bicarbonate is excreted, chiefly by the urine, which becomes alkaline. However, the carbon dioxide is washed out of the blood more rapidly by over-ventilation than sodium bicarbonate is excreted, thus producing a temporary alkalosis.

Conclusions.—1. The first clinical cases of tetany due to involuntary forced breathing are reported.

2. Over-breathing sufficient to produce alkalosis may occur during an acute disease, such as cholecystitis, influenza; in hysterical or gastric disturbances; during and following physical exertion.

3. Tetany resulting from forced respiration produces hypesthesia to pain.

4. The type of breathing in all cases of tetany should be carefully observed.

DISCUSSION

Dr. E. A. Graham: The line of thought that Dr. Goldman has been developing is certainly most interesting and I congratulate him very much for the splendid way in which he has attacked the problem. I am not sure, however, that his explanation of the spasms seen in connection with anesthesia is correct. At least it seems to me that other explanations may be more suitable for some of these spasms, particularly those associated with nitrous oxide anesthesia. It is well known that general asphyxia, if sufficiently intense, will produce general convulsions. If the asphyxia is severe enough, it is possible to produce a typical opisthotonos. During the course of nitrous oxide anesthesia, especially if improperly given, it is not unusual to see patients with firmly contracted muscles amounting sometimes almost to an opisthotonos. At the same time there is usually cyanosis. In other words, it seems certain that very often convulsions are produced during the course of an anesthesia by asphyxiation. Might it not be possible also that minor degrees of asphyxiation, or localized asphyxiation, would also produce convulsions similar to tetany. Local asphyxia of unstriated muscle is regularly followed by severe contractions of the muscle as seen, for example, in the intestine and also in the uterus.

Dr. George Dock: The work Dr. Goldman has previously done goes very well with this paper and makes a very interesting demonstration. When

we recall certain facts about over-breathing we can see that there are still fields to explore, and I have no doubt Dr. Goldman will follow these up as successfully as he has hitherto. A large number of experimental subjects should be studied in order to see what differences there are in the clinical features of the cases. Although over-breathing has long been observed it is curious how late it was that its relation to tetany was discovered. This, of course, is partly associated with the late discovery of tetany in general. In fact, even now there are many people who do not understand it and describe as tetany epileptic or hysterical attacks, or I have even seen cases diagnosed poliomyelitis with all the phenomena of tetany strongly marked. One of Dr. Goldman's cases was diagnosed epilepsy in the army. We had a patient here with genuine epilepsy who had been diagnosed tetany, although very careful studies by Dr. Goldman never showed any indications of tetany.

Dr. Stevenson: I had the opportunity of seeing one of Dr. Goldman's patients with clinical hysteria in which tetany developed. I saw the patient about one week later and just wanted to report that the paresthesia in the hands still persists. The rapid breathing had gone.

3. (a) THE OCCURRENCE OF HEMOLYTIC STREPTOCOCCUS IN NORMAL THROAT.—By CHIN SANG WU.

Hemolytic streptococcus is a distinctive type of streptococcus particularly in its invasive power. It is the source of "septic sore throat" and of such complications as broncho-pneumonia, suppurative otitis media, septic meningitis, empyema and abscesses of various type. It is important to determine how frequently such a virulent invader occurs in the normal throat.

Numerous statements have been made about this question. Percentage of positive findings range from 1 per cent. up to 87 per cent. In these studies by different investigators two different methods, the surface and the deep culture, have been employed. Those who used the former method obtained a very low percentage of positive findings and those who used the latter method found a very high percentage of positive evidence. The present study was undertaken with these points in mind.

Methods.—Twenty students were used as subjects. They were divided into two groups of ten. Throat cultures were taken of each group on alternate weeks for a period of eight weeks covering the winter season. Both methods, the surface and the deep culture on 5 per cent. blood agar were used. For identification of the organism, the presence of a bile-insoluble streptococcus, whose broth culture hemolyzed a suspension of sheep red blood cells was regarded as diagnostic.

Results.—Percentage of positive cultures of hemolytic streptococcus in this group averaged 21.4 for the deep, and 6.4 for the surface cultures.

Eight out of the 20 students showed a hemolytic streptococcus at some time, four in a transitory way, four persistently. Of the four who persisted in yielding positive cultures, one had tonsillitis during the study, one had tonsillectomy a year previously for sore throat, one is subject to recurrent tonsillitis, and the other is found to have pus in one of his tonsils.

Conclusions.—1. Hemolytic streptococcus is not constantly found in normal healthy throats. 2. For the investigation of the incidence of hemolytic streptococcus in throats deep cultures on blood agar are recommended.

3. (b) THE FAUCIAL TONSILS: BACTERIAL FLORA WITH PARTICULAR REFERENCE TO HEMOLYTIC STREPTOCOCCUS AND HISTOPATHOLOGICAL CHANGES.—By DR. H. H. BELL.

This investigation was made on patients having tonsils which were regarded by the laryngologists as diseased and were removed in the Washington University Dispensary. It consisted in (a) swabbing the patients' throats immediately before tonsillectomy, (b) culturing removed tonsils, (c) re-swabbing the patients' throats for culture after tonsillectomy, (d) histopathological and bacteriological study of sections of removed tonsils, and (e) comparison of results thus obtained with clinical histories of patients.

One hundred patients were studied. Several methods of culturing were employed and results compared. The bacterial flora of deep crypts was usually found to be much restricted and pure cultures were often obtained.

HEMOLYTIC STREPTOCOCCUS IN CULTURES FROM THROAT SWABS AND TONSILS

Present in swab culture and absent in tonsil cultures, 3 times.

Present in swab culture and in one tonsil culture, 4 times.

Present in swab culture and both tonsil cultures, 35 times.

Absent in swab culture and present in both tonsil cultures, 15 times.

Absent in swab culture and one tonsil culture, 13 times.

Absent in swab culture and both tonsil cultures, 30 times.

Twenty patients who had hemolytic streptococcus in swab culture and tonsil cultures were recultured from 1 to 8 months after tonsillectomy. The hemolytic streptococcus was not found in any of the cultures taken after tonsillectomy.

The histopathological and bacteriological study of sections of removed tonsils will be discussed at another time.

COMPARISON OF BACTERIOLOGICAL FINDINGS WITH CLINICAL HISTORY OF CASES

Of 70 positive patients 54, or 77 per cent., gave history of infection.

Thirty-nine gave history of frequent attacks of sore throat.

Five gave history of frequent attacks of sore throat associated with enlarged cervical glands.

Seven gave history of frequent attacks of sore throat associated with ear infections.

Three gave history of swollen joints and rheumatism.

Thirteen gave history of breathing through the mouth.

Three histories incomplete.

Of 30 negative patients 10, or 33 per cent., gave history of infection.

Eight gave history of frequent attacks of sore throat.

One gave history of occasional attack of sore throat.

One gave history of earache for preceding two weeks and of breathing through the mouth.

Seventeen gave history of breathing through the mouth.

Three histories incomplete.

DISCUSSION

Dr. V. P. Blair: I think these presentations should not go by without some clinical application. It seems curious to me from the number of palate operations we do that we now rarely get an active streptococcus infection. Some years ago Dr. Thomas Gilmer, a very careful observer, told me that since he had been tying his face up with a heavy towel in doing palate operations he had raised the percentage of his successes very much. I could not at the time see the rationale and it was some years afterwards that I followed his advice. I am perfectly sure that our successes jumped 100 per cent. from that time on. That observation has extended over a period of some years. One cannot help but conclude that the person who carries the streptococcus seems often to have an immunity from the strain they carry, but you cannot afford to mix them.

Dr. Kinsella: I think one of the practical points indicated by these two papers is the necessity of studying the bacteriology of the throat preparatory to operation, since we are aware of the post-operative complications which the hemolytic streptococcus causes. A healthy condition of the throat is most desirable before any surgical measure should be taken in the presence of this streptococcus.

Two other points have been emphasized, namely, a more frequent occurrence of the hemolytic streptococcus in the depth of the tonsil and a rather promiscuous occurrence of the hemolytic streptococcus in normal throats under certain circumstances.

Mr. Wu's work answers the first, inasmuch as he found that deep plate cultures gave a higher percentage of incidence than surface plate cultures. As far as the frequency of hemolytic streptococcus in so-called normal throats is concerned, the circumstances under which the question is investigated are important. For example, in army camps, the incidence was higher because the section of the population studied could not get away from the infected section. Smillie, who studied normal throats during an epidemic of hemolytic streptococcus sore throat, reports an incidence of 1 per cent., using the surface plate method. Under our own studies both deep and surface methods were used. Freshly prepared media were always employed.

Dr. A. E. Strauss: I would like to add just one more word to the discussion in connection with the clinical application of this paper. In a recent article, Coombs (*Quarterly Journal of Medicine*, Jan., 1922) makes some observations of interest. He has taken streptococci from various sources—chorea, rheumatic fever, endocarditis, etc.—and has caused ulcerative endocarditis in experimental animals with them. He has also taken cultures from normal mouths and normal stools. The streptococci from both these latter sources have produced the same kind of lesion as those taken from the cases of chorea, rheumatic fever, and similar virulent infections. Therefore the observations made by Dr. Blair are very apt, that is, that no matter how innocuous the streptococcus to the individual harboring it, we have no assurance that others who are exposed to it will remain equally innocuous.

Dr. Howard H. Bell: Both Tongs and Van Dyke stated that they found the hemolytic streptococcus oftener in poured plates than in surface plates. I have used both methods and found the results to be practically the same. The colonies are less conspicuous in surface plates, and it is necessary to observe the cultures carefully. High percentage of blood and thick plates tend to make surface colonies less evident. Old prepared plates are not reliable.

4. LEUKEMIC TYPES.—By DR. S. JOHN HOUSE.

From my study of six cases of leukemia and from the careful analysis of the histories of 24 other cases of leukemia I have arrived at certain conclusions, which on account of my limited time I have chosen to demonstrate by lantern slides.

In table I are listed nine cases out of 30 (30 per cent) which conform to fairly definite anatomic and clinical types. These clinical types or syndromes are not particularly characteristic of leukemia, often in fact existing without a blood picture of leukemia. I would like to emphasize the fact that in some of these cases, as, for instance, cases 2, 3, 10, 13 and 27, we are not dealing with a primary leukemia, but with acute infections, the specific organism of which in cases 2, 3 and 10 is generally regarded to be bacillus fusiformis.

In table II are listed three cases where the diagnosis of leukemia I believe was based upon insufficient evidence. These cases belong rather to the group of cases often referred to in the literature as infectious mononucleosis (Case 13) and infectious lymphocytosis (Cases 14 and 17). Additional evidence that case 17 belongs to the group of infectious lymphocytosis is that this individual is still well after four years, having received no specific treatment for leukemia.

In table III are listed three cases of chronic myelogenous leukemia, in whom a leukopenic state was produced by X-ray and benzol. This should be very carefully avoided as patients so over-treated rarely live more than a few months.

I would like to speak a few words concerning the management of these cases. Now, in order that one may know at any given time just what phase of the leukemia exists and the effects and quantity of treatment, I have devised a chart, called the "Total Chart" which is incorporated as a sheet in the history. The essential features of the chart, samples of which I have passed around, are, complete blood examination (morphologic, daily; chemical, twice a week), urine and metabolic studies with notes as to the patient's general condition.

Now, having followed certain cases by this method from day to day and noting the variations that occur, even daily, I am impressed with the necessity of frequent and thorough observations of all cases of treated leukemics. I can no longer subscribe to the plan of giving a dose of X-ray and sending these people home to take benzol for three weeks without observation. These cases, especially while under treatment, should be observed at least once a week, better twice a week. For, as I have shown, much harm can be done by over-treatment.

It is only by following some such orderly and thorough system of observation that we can ever hope to unravel the mystery surrounding our knowledge of the nature of leukemia.

DISCUSSION

Dr. George Dock: Dr. House has devoted a great deal of time and well acquired knowledge to this subject. He has formulated a number of points which will give him an important basis for later experience. For the benefit of those who will have to treat leukemic patients, and for the benefit of possible patients, I would like to discuss one of Dr. House's suggestions from a contrary standpoint. Patients sometimes get bad effects from both benzol and X-rays, but I feel quite sure that on the whole they live longer and in better functional condition under that treatment than they did in the earlier days. It was most unusual at that time to see a patient living over two years from the time the con-

dition was discovered. Now it is not unusual to see good condition for three years or more. In the early days of X-ray treatment patients died from the treatment, but that must be very rare at the present time. I think it is rather bad therapeutics to take the ground that a patient must do absolutely as we say or not be treated. We cannot do that always with leukemics, nor can we always do it with people with tuberculosis or many other diseases. The question then comes up whether it is better to compromise and do the best we can or turn the patient loose on somebody who may be worse.

Dr. S. J. House: I would just like to say one more word. The basis on which I made my conclusions was for the most part from the examination of hospital histories. It may be true that some of these patients get along well if not observed frequently, but it would seem that they are the only ones that derived any benefit from it. The people who go to the histories later get nothing out of it. If we ever intend to do anything with leukemia the thing has got to be worked up from a more scientific standpoint than it has ever been before.

PROCEEDINGS OF ST. LOUIS NEUROLOGICAL SOCIETY

April 24, 1922. City Sanitarium

Dr. Francis M. Barnes, Jr., Presiding.

Dr. L. B. Alford, Secretary

REPORTS OF CASES.

A. A CASE OF NEUROSYPHILIS WITH AN UNUSUAL DEFECT OF SPEECH.

—By DR. CHAS. BURDICK.

The patient is a young man with a positive Wassermann reaction in the blood and a negative in the spinal fluid. He does not seem to be badly demented as he is able to care for himself and for amusement plays solitaire. He has very little initiative, however, and is unable to speak at all. It is not clear whether this inability is due to a lack of effort, an apraxia or an aphasia. He apparently sometimes recognizes the name of an object when spoken by another, and sometimes not. When trying to make one understand at times he shows a good deal of irritability. Except for this defect the physical and neurological findings are negative. The point it is desired to emphasize in the case is the nature of the speech defect.

DISCUSSION

Dr. Fry: The case which Dr. Burdick presents furnishes an opportunity for a very interesting study of aphasia. Taking into account the serological and clinical findings, the patient would seem, at least potentially, a paretic. Aphasia is an unusual accompaniment of paresis, at least persisting aphasia of the magnitude seen here. It would take a great deal of time and patience to figure out the several features in this case but it seems worth while. For instance, if this patient begins to improve it would be very interesting to watch the evolution of his speech recovery. I know such cases do clear up for I have seen them do so.

Dr. Lewald: I believe the irritability sometimes shown by the patient is due to the inability to make himself understood.

Dr. Farmer: I have in mind a case of similar nature. The patient had a strongly positive Wassermann reaction in both blood and spinal fluid.

The other routine tests on the spinal fluid were also positive. He had several fleeting attacks of hemiplegia with speech disturbance. The last one was more severe than the others and necessitated his going to the hospital. The speech disturbance was a paraphasia and cleared up after several weeks. There was also a rather marked apraxia. This also cleared up under antiluetic treatment. Physically the patient improved wonderfully but there remained a mental enfeeblement that later necessitated his going to the City Sanitarium. Doubtless this case of Dr. Burdick's is similar to mine excepting that there are not the physical signs of a hemiplegia and therefore the aphasia may clear up under treatment.

Dr. Barnes: Dr. Fry mentioned in his discussion the possible parietic element in this case and I want to inquire if such has been the diagnosis made by Dr. Burdick inasmuch as there is practically but the syphilitic history and the speech defect, both of which only remotely suggest such a condition. The speech defect itself is obviously of an aphasic character and not in any way parietic. There are no evidences of other focal lesions than the aphasia and really nothing further to suggest paresis. I believe also the spinal fluid Wassermann was negative.

B. A CASE OF MENTAL DEFICIENCY WITH DELINQUENCY.—By DR. PEACUT.

The patient is a young woman who was committed by the court for observation as to her mental condition. The charge on which she is held is forgery and she has also been accused under the prohibition act. The forgery charge is based on a check given to a street peddler and the court's attention was drawn to her mental condition by the circumstances, they being such that it was practically impossible that she should escape detection. Examination disclosed that the patient is profoundly defective mentally and the wonder is that she has been able to support herself in the world. It is possible that she did not write the check herself but was the tool of another. It is noteworthy that in the course of the physical examination an extremely foul mass of paper was found in the vagina. This had been placed there some time before probably to control uterine hemorrhage. The neurological examination is negative. The case is presented as demonstrating with how great a mental defect persons may be able to exist outside of an institution.

DISCUSSION

Dr. Hoge: The case very evidently is one of mental defect in which responsibility in a legal sense can be said not to exist. Such persons should not be dealt with in the courts but in asylums where their mental condition is understood. She will probably have to remain in an institution the rest of her life. The defect is doubtless congenital and inherited.

Dr. Campbell: The patient has probably always been defective but it is possible that her present abject mental state is partly due to a psychosis which has arisen on the basis of the defect. Many persons charged with crime are, like the patient, defective and should be treated in asylums rather than punished in jails, but whose defect is missed by the court authorities. Mental deficiency is very much more common than is generally suspected.

Dr. Fry: The patient is undoubtedly mentally defective and the defect is probably innate and not due to disease. Defect of this sort is hereditary

so, for the protection of the community, such patients should be prevented from having children.

C. A CASE WITH PSYCHOTIC SYMPTOMS IN WHICH PITUITARY DISEASE IS SUSPECTED.—By DR. JAMES LEWALD.

The patient is a man of 40 years with ideas of influence and attacks simulating the mild form of epilepsy. The mental state is of an unusual type not corresponding to the classical forms but rather consisting of a sort of confusion with the mild delusion formation. There is a rather marked polyuria without chemical changes in the urine. An X-ray of the head shows an indefinite shadow in the sella but otherwise is practically negative. There is also a defect in the visual fields.

DISCUSSION

Dr. Bliss: The X-ray findings in this case are not very convincing to me. So many errors in the interpretation of X-ray pictures occur, particularly as regards the region of the sella, that reliable data are obtained only from stereoscopic plates which have been taken with extreme care. The question whether the syncopal attacks described might be "pituitary epilepsy" was brought up. While these were not distinctly epileptic in type, still they are worth while considering as being one of the great variety of "attacks" based on lesions of the brain. Basal metabolism, sugar tolerance, further X-ray studies and perimeter measurements should be made to throw further light on the problems involved in this case.

Dr. Fry: I am glad that Dr. Lewald has the promise of some further X-ray pictures to be made of his patient's skull. I do not believe from what he has that one can form any reliable idea as to the condition of the sella and its neighborhood. It would be advisable to make repeated attempts until first-class stereoscopic pictures are obtained. This skull is an interesting study. I noticed a great variation in the thickness and density of different parts of it, at least so it would seem from these pictures.

Dr. Barnes: The impairment of the visual fields together with the polyuria suggest the possibility of a pituitary involvement. The syncopal attacks as described do not fit the picture of "pituitary epilepsy" in any particular. The X-ray plates of the sella so far as I can see are perfectly normal in all respects. That the posterior clinoid process appears enlarged is true, but on comparing these two plates it will be noted that there are differences between them which can be most easily explained by assuming that the angles at which the pictures were taken were slightly different. Opposed to the possibility of pituitary involvement it is to be noted that the usual body markings which go with pituitary disorder of either the anterior or posterior lobe are absent in this case. In addition to the polyuria the urine examination shows cylindroids and it would be necessary before this could be considered a diabetes insipidus that a renal function test be done to rule out a possible nephritic element. The evidence so far presented is to my mind insufficient to support a diagnosis of pituitary disorder and further investigation including sugar metabolism should be made.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society convened in the Ted McCadden Hall, Thursday afternoon, June 8. The meeting was called to order by the presi-

dent, Dr. R. D. Ramey. The minutes of the previous meeting were read and approved. The following members were present: Dr. C. S. Dodd, of Dayton; Dr. L. C. Snell, of Freeman; Dr. W. F. Chaffin, of Raymore; Dr. R. D. Ramey, of Garden City; Drs. J. S. Triplett and M. P. Overholser, of Harrisonville. Dr. Thomas Parran, of Jefferson City, Director of Rural Sanitation, was also present and took an active part in the discussion of the scientific subjects presented to the Society. A number of the citizens of our community were invited to attend this meeting for the purpose of hearing Dr. Parran on the subject of rural sanitation of our county.

Previous to the opening of the meeting Dr. Parran presented to the physicians and a number of the citizens of our community the plan of organization of a county health unit for Cass County. The plan and scope of public health work as outlined by the Doctor under the system of organization of a county health unit is undoubtedly the most practical, complete, and efficient system of public health work ever instituted in the counties of our state. The Health Unit of Cass County would consist of an efficient and specially well trained health officer, a public health nurse, and an office assistant. This work includes the inspection of the school children of our county and practically every important phase of public health work. It was the unanimous opinion of the members of the Cass County Medical Society that the establishment of this plan of public health work in Cass County as offered by the State Board of Health with the financial assistance of the United States Public Health Service and the International Health Board is a most excellent plan. It is a rare opportunity offered our county for the public welfare, as funds for this work are available at the present time for only a limited number of counties of Missouri. It was decided that public meetings should be held in the near future in various parts of the county in order to present this important matter to our people for their most thoughtful consideration.

The program of the scientific work of the Society follows: Paper by Dr. H. Jerard, on the subject of "Blood Pressure." "Materia Medica and Therapeutics," by Dr. R. D. Ramey. "Supernumerary Digits," with report of case, by Dr. J. S. Triplett. "Gastric Ulcer," by Dr. M. P. Overholser.

The subject of "Blood Pressure" was taken up for discussion in the absence of the author of the paper, and quite a lengthy, practical and interesting presentation of the different phases of blood pressure followed, in which every member present took an active part.

"Supernumerary Digits," with report of a case, was the next paper presented. The author, Dr. J. S. Triplett, took up the various abnormal conditions found in the bones and cartilages of supernumerary digits of the hands and feet, emphasizing the hereditary factor which is always present in these cases. The Doctor also reported cases which have come under his immediate observation and the steps he took to correct these abnormalities.

After a thorough discussion of this subject, Dr. M. P. Overholser followed with a paper on "Gastric Ulcer," reviewing the causes, frequency, symptoms, clinical and X-ray diagnosis, complications, and medical and surgical treatment of these cases.

Dr. R. D. Ramey, president of the Society, concluded the reading of the scientific papers by the presentation of a very practical and interesting paper on "Materia Medica and Therapeutics." The Doctor emphasized the importance of a more thorough knowledge of the action of the various remedial agents we as physicians administer to our patients

All the papers read were fully discussed by each member present. Our visitor, Dr. Parran, favored the Society with particularly interesting discussions on all the subjects presented. The Doctor also gave the Society a full report of the various public health measures which were considered in the Public Health Section of the American Medical Association recently held in St. Louis. A further report on some of the work of the American Medical Association in the House of Delegates, and in some of the Scientific Sections, and also a short report of the meeting of the Missouri State Medical Association, held in Jefferson City during the early part of May, was made to the members of the Society by Dr. M. P. Overholser.

It was conceded by all the members that the meeting was one of the most beneficial and interesting held by the organization for many months past.

The Society adjourned until its next regular meeting in September, at a rather late hour in the evening after a full afternoon's program.

R. D. RAMEY, M.D., President,
M. P. OVERHOLSER, M.D., Secretary.

BOOK REVIEWS

HAY FEVER AND ASTHMA. Care, Prevention and Treatment. By William Scheppegrell, A.M., M.D., president, American Prevention Association; ex-president American Academy of Ophthalmology and Otolaryngology; Chief of Hay Fever Clinic, Charity Hospital, New Orleans. Illustrated with 107 Engravings and 1 Colored Plate. Lea & Febiger, Publisher, Philadelphia and New York, 1922. Price, \$2.75.

This book should be in the hands of every man who pretends to work in hay fever and asthma, for it gives the best study of the plans involved that the reviewer has seen. It does not, however, contain the best information as to the Chandler-Walker method of making vaccines, or of the Gilbert method of using autoserum.

The author groups the hay fever pollens into four classes: 1. Rag weeds. 2. Grasses. 3. Wormwoods. 4. Amaranth, chenopods and docks.

He rejects the claim of the insect-pollinated plants as participants in the causation of hay fever.

The author's view as to the origin of hay fever might be obtained from this extract (p. 110): "This result is due to the fact that all cells possess to some extent a proteolytic power which acts as a defense against the invasion of foreign proteins, provided certain limits are not exceeded. In the case of the hay fever subject, the proteins of the inhaled pollen are digested so rapidly that the liberated products act as a toxin. In the normal subject, however, in which this process takes place more slowly, the products are assimilated without disturbing the equilibrium of the subject. In addition to this, the entrance of foreign proteins by parenteral channels results in the development of antibodies, which are ferments that protect the host within certain limits. The extent to which these processes neutralize the liberated products of the pollen protein establishes the degree of immunity of the patient."

The author does not believe many patients have hay fever on account of nasal conditions. He does believe that the inflammations due to micro-organisms in the nose demand special treatment.

He finds that the incidence of hay fever depends entirely on the winds and the amount of pollen in

the air. He finds, also, that asthma develops in 43 per cent. of hay fever patients.

G. H. H.

SURGICAL ANATOMY. By William Francis Campbell, M.D., Surgeon-in-Chief at Trinity Hospital, Brooklyn, N. Y.; Sometime Professor of Anatomy and Professor of Surgery Island College Hospital. Third Edition, Revised; 681 pages, with 325 original illustrations. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$6.00 net.

After a book has gone through several editions there is but little to say. It is evidently filling a want and to say "it has been kept up to date" is about as trite as the comments of the country newspaper in reporting a church social: "A good time was had by all;" or the wedding report which says: "The bride looked beautiful in a bodice of 'kreep de' something and carrying a bouquet of roses." The point is that in all three instances the description does not relate everything. At the social a lot of things happened that the description does not take into account and the bride wore something besides the bodice and bouquet. It is understood that she wore other things but obviously they need not be detailed because women understand and men would not even if told. So with Campbell's Anatomy. Those interested in anatomy and surgery know already the excellent features of the work and those who do not will not be enlightened by the reviewer's detailed description of the more specific features. Suffice it to repeat that it is a good book, as indicated by the repeated editions called for, and it has been kept up to date. For this the reader must take the reviewer's word or get a copy of the book and find out for himself.

J. M. B.

DISEASES OF THE EYE. A Handbook of Ophthalmic Practice for Students and Practitioners. By George E. de Schweinitz, M.D., LL.D. (Univ. of Pa.), Professor of Ophthalmology in the University of Pennsylvania, etc. Ninth Edition, reset, with 415 illustrations and 7 colored plates. Philadelphia and London: W. B. Saunders Company, 1921.

In writing a single volume treatise on any of the medical specialties, an author should endeavor to steer a true course between the Scylla of undue bulk and the Charybdis of too much abbreviation. If one must be encyclopedic, let him confine his contributions to the encyclopedia; if one must be brief, let him write a manual.

Dr. de Schweinitz, in the preparation of his deservedly popular text-book, has, in the opinion of the reviewer, steered such a true course. In the thirty years which have elapsed since the appearance of the first edition much water has flowed under the ophthalmological mill and so each successive edition has exhibited changes in conformity with the ever-changing aspect of this great specialty, but the general plan of the book remains the same and the changes are for the most part amplifications and additions. The groundwork, based on the author's ripe experience in clinical ophthalmology, has remained unchanged.

In the years intervening between the appearance of the preceding edition (1916) and the present, the World War has overshadowed the earth, giving rise to an extensive literature on military ophthalmology, much of which is reflected in these pages.

If Fuch's text-book be accepted as the "Bible" of ophthalmology, De Schweinitz's might well be designated their "Prayer Book."

A number of new illustrations have been added.

The letter-press is excellent though a number of typographical errors have crept in.

J. G., Jr.

L'ENCEPHALITE LETHARGIQUE, par le Pr. Achard, professeur de clinique médicale a la Faculté de Médecine de Paris, médecin de l'hôpital Beaujon, membre de l'Académie de Médecine. 1922, 1 vol. in-8 de 324 pages avec 15 figures: 16 fr. (Librairie J.-B. Baillière et fils, éditeurs, a Paris, 19, rue Hautefeuille).

This book of some three hundred pages gives us a fairly complete review of the literature on this subject, as well as giving case reports by the author and his critical analysis. In the first portion ten pages are devoted to a historical development, a review alone invites the student to read carefully the entire volume. The author believes that he has found a description of epidemic encephalitis in the third aphorism of Hippocrates, by Van Swieten, and later among the writings of Camerarius in 1712.

It is interesting to note that among the many types discussed, the prognosis for the myoclonic is more serious compared with the others. He also impresses us with the necessity for caution on the prognosis. It is known that recurrences are not infrequent and that the virus may be hidden among the neurons of the brain many months before another attack. Economo's case is cited where a return of the encephalitis appeared nineteen months after the first attack. The autopsy revealed typical recent lesions with the old healed ones in the brain stem. In discussing the prognosis he gives a statistical death rate of from twenty to fifty per cent. However, he warns us that this rate may be too high in view of the fact that many of the milder cases probably are not reported.

The treatment is given some attention. He devotes much space to the convalescent serum but without demonstrating its efficiency or endorsing its continual use. The symptomatic therapy, chemicals designed to attack directly the virus and nasopharyngeal disinfection, are considered.

A rich bibliography divided into two portions is appended. Excepting for two books on this subject by American authorities in English, Achard's monograph would be valuable for a translation into our language. His style is clear, and it makes easy French reading.

A. L. S.

CLINICAL DIAGNOSIS. A Text-Book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers and Practitioners of Medicine. By Charles Phillips Emerson, A.B., M.D., Late Resident Physician, The Johns Hopkins Hospital, and Associate in Medicine, The Johns Hopkins University; Professor of Medicine, Indiana University School of Medicine. One hundred fifty-six illustrations. Fifth edition, entirely rewritten and reset. Philadelphia and London: J. B. Lippincott Company, 1921. Price, \$7.50.

It is always difficult to criticize an old friend or to review a book which one has been brought up on. While such an intimate association may at times be a sentimental handicap, it has its particular value since it represents a sympathetic appreciation of the continued growth of such a book.

Ever since the first appearance of the first edition of Emerson's book in 1906 it has been universally recognized as one of the best books on this subject—to many it has meant in laboratory diagnosis what Osler's Practice of Medicine is in clinical medicine.

The fifth edition of Emerson's work is in every respect an improvement over the previous editions. In appearance it is much like former editions, the same logical sequence of chapters, the same clear print, and the excellent illustrations. When one examines the book more carefully he appreciates the numerous additions and improvements which have brought this edition up to date. And if he would try to appreciate what this task has been, and how well and faithfully it has been performed, he has but to consider for a moment the tremendous advances the past ten years have brought, particularly in serology and blood chemistry.

In this book the medical student will find a new and stimulating work worthy of closer acquaintanceship; the practitioner will find an old and still faithful friend.

The advice given by the author in the preface of the first edition sixteen years ago is quite as sound now as it was then, and just now needs particular emphasis. Thus: "The clinical chemist must be first a good clinician, and second a chemist; he should remember that even from the laboratory point of view his stethoscope is of more importance than his microscope, his percussion finger than his whole outfit of chemical apparatus."

R. H. M.

THE PRACTICAL MEDICAL SERIES. Vol. VI, Therapeutics. By Bernard Fantus, M.S., M.D., Associate Professor of Therapeutics, Rush Medical College. Preventive Medicine. By Wm. A. Evans, M.S., M.D., LL.D., D.P.H., Professor of Sanitary Science, Northwestern University Medical School. Series 1921. Chicago: The Year Book Publishers. Price, \$1.75.

These little books need no introduction to the physicians of our time. The present volume keeps up the high standard of their previous excellence. It is worth noting a thing which is particularly prominent when a general review of the work of a single year is collected, that the best and most scientific work is now done in the United States and published in English. A few years ago a medical author in this country with something important to say published his work in German in order to get it in the literature. This is no longer true and the German work here recorded is noticeably weak. The torch of progress in medical research has been passed to America.

L. C.

STUDIES, REPORTS AND OBSERVATIONS. From the Dermatological Departments of the Barnard Free Skin and Cancer Hospital, and the School of Medicine, Washington University, St. Louis, 1921. Cloth, 252 pages.

This little volume, which is a collection of reprints that have been published in various medical journals during the past half decade, is of very great interest and value, particularly to the research student. Taussig's contribution is a valuable addition to our knowledge of the precancerous lesions of the skin of the vulva, and Weiss presents two very interesting papers, one on Von Recklinghausen's disease in the negro and one on the picric acid treatment of severe epidermophyton infections.

In an article on "Camphor Oil Tumors," Mook and Wander emphasize an evil which has long been recognized, the danger incurred when liquid paraffin and similar non-absorbable substances are injected into the skin.

Eberson's studies on experimental syphilis, along the lines suggested by Brown and Pearce, are excellent and of value to the clinician as well as to the laboratory worker.

The illustrations are excellent and the press work good. The volume is one which deserves a place in every medical library.

R. L. S.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

IZAL.—An albuminous emulsion containing not less than 50 per cent. of "izal oil," obtained in the destruction of bituminous coal, and consists essentially of monatomic phenols boiling between 205 and 300 degrees C. Izal is practically free from phenol and cresols. Izal is a germicide and disinfectant. The germicidal efficiency is claimed to be twelve times as great as that of any equal quantity of phenol, but it is stated to be less toxic than phenol. The Abbott Laboratories, Chicago.

IZAL DISINFECTANT POWDER.—Izal oil, 10 per cent.; naphthalene, 5 per cent.; inert, absorbent earth, 85 per cent. The Abbott Laboratories, Chicago.

POWDERED PROTEIN MILK-MERRELL-SOULE.—**DRY PROTEIN MILK.**—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 gm. contains approximately: protein, 38 gm.; butter fat, 27 gm.; free lactic acid, 3 gm.; lactose, 24 gm., and ash, 5 gm. Powdered protein milk is said to be useful for correcting intestinal disorders of infants and children. For the majority of conditions, powdered protein milk should be administered in small quantities according to the age and condition of the patient, after a period of starvation of from twelve to forty-eight hours. Merrell-Soule Sales Corp., Syracuse, N. Y.

SABROMIN.—**CALBROBEN.**—**CALCIUM DIBROMBEHENATE.** Sabromin contains not less than 28.5 per cent. of bromine. Sabromin is not adapted to conditions in which a rapid saturation of the system with bromine is required. It is indicated in conditions in which the bromides cannot be administered for continued periods without gastric disturbance or in which brominism is caused readily. It is claimed that sabromin is of value in conditions in which a mild sedative action is desired, particularly in conditions requiring prolonged administration.

Dosage: From 0.3 to 1.2 gm. (Winthrop Chemical Co., Inc.) New York (*Jour. A. M. A.*, May 6, 1922, p. 1389).

Sabromin tablets, 8 grains. Winthrop Chemical Company, Inc. (*Jour. A. M. A.*, May 6, 1922, p. 1389).

IOTHION.—**IOPROPANE.**—**DI-iodo-HYDROXY-PROPANE.** Iothion contains from 77 to 80 per cent. of iodine. It is used when it is desired to obtain the systemic effect of iodides by external application. Iothion is used in the form of iothion oil, in solution in alcohol or glycerin, or in the form of ointments containing from 5 to 20 per cent. of iothion. Winthrop Chemical Company, Inc., New York (*Jour. A. M. A.*, May 13, 1922, p. 1459).

Iothion Oil: Iothion, 10 parts; chloroform, 10 parts; olive oil, 80 parts. Winthrop Chemical Co., Inc., New York (*Jour. A. M. A.*, May 13, 1922, p. 1459).

TYPHOID-PARATYPHOID VACCINE (PROPHYLACTIC). (See New and Nonofficial Remedies, 1922, p. 310.) A typhoid vaccine marketed in packages of three

1 c.c. bulbs, the first dose containing 500 million killed typhoid bacteria, 375 million killed paratyphoid A and 375 million killed paratyphoid B bacteria; the second and third doses each containing 1,000 million killed typhoid bacteria, 750 million killed paratyphoid B bacteria, respectively. Parke, Davis & Co., Detroit, Mich.

PNEUMOCOCCUS VACCINE (4 Types). (See New and Nonofficial Remedies, 1922, p. 304.)—A suspension of pneumococci, Types I, II, III and Group IV, in equal proportions, in physiologic solution of sodium chloride, preserved with cresol, 0.3 per cent. Each cubic centimeter contains 3,000 million killed bacteria. Marketed in packages of four 1 c.c. bulbs; four 1 c.c. syringes; 5 c.c. vials and 20 c.c. vials, respectively. Parke, Davis and Co., Detroit, Mich.

STREPTOCOCCUS VACCINE POLYVALENT (SCARLATINA).—A streptococcus vaccine (see New and Nonofficial Remedies, 1922, p. 308), marketed in packages of four 1 c.c. bulbs, each cubic centimeter containing 1,000 million killed streptococci isolated from scarlatine cases; also marketed in packages of 4 c.c. syringes, in 5 c.c. vials and in 20 c.c. vials. Parke, Davis and Co., Detroit, Mich.

PERTUSSIS VACCINE.—A pertussis bacillus vaccine (see New and Nonofficial Remedies, 1922, p. 303), marketed in packages of four 1 c.c. bulbs, each cubic centimeter containing 4,000 million killed pertussis bacilli (Bordet); also marketed in packages of four 1 c.c. syringes, in 5 c.c. vials and 20 c.c. vials. Parke, Davis and Co., Detroit, Mich. (*Jour. A. M. A.*, May 13, 1922, p. 1459).

DIPHThERIA TOXIN-ANTITOXIN MIXTURE-MULFORD.—Each c.c. of this mixture (see New and Nonofficial Remedies, 1922, p. 282) constitutes a single dose containing three lethal doses of toxin and 3.5 units of antitoxin. It is marketed in packages of three 1 c.c. vials; in packages of thirty 1 c.c. vials, and in packages of one 10 c.c. vial. H. K. Mulford Co., Philadelphia.

PHENOLSULPHONEPHTHALEIN-IPCO.—A brand of phenolsulphonephtalein-N. N. R. (See New and Nonofficial Remedies, 1922, p. 222.) It is marketed in the form of Vensterile solution phenolsulphonephtalein, 1 c.c. representing phenolsulphonephtalein-Ipco 0.006 gm. in the form of monosodium salt. Intra Products Co., Denver. (*Jour. A. M. A.*, May 23, 1922, p. 1612.)

PROPAGANDA FOR REFORM

MORE MISBRANDED NOSTRUMS.—The following products have been the subject of prosecution by the Federal authorities charged with the enforcement of the Food and Drugs Act:

IRON ELIXIR (Charles S. Miller), a dilute watery solution of sodium citrate and iron chlorid, with a slight trace of alcohol, sold as a cure for pimples and boils and as a blood purifier.

VEGETABLE REGULATOR (Charles S. Miller), an alkaline watery solution containing aloes and baking soda, claimed to be a remedy and cure for diseases of the liver, diseases pertaining to the stomach and bowels.

DIURETINE (East India Medicine Co.), consisting of potassium acetate, buchu extract, a laxative plant drug, oil of juniper berries, sugar, alcohol and water and represented as a cure for Bright's disease and other conditions.

BLOODZONE (East India Medicine Co.), consisting of extractives of plant drugs, including a laxative drug, sugar, alcohol and water and represented as a cure for syphilis, cancer, rheumatism, catarrh, boils, psoriasis, pimples and many other conditions.

GRANTILLAS (Eneglotaria Medicine Co.), containing emodin-bearing plant extractives and cramp bark and claimed to be "the best existing uterine tonic," a first class general tonic in anemia and chlorosis and a cure for "Hysteria."

WINSLOW'S SARSAPARILLA COMPOUND (Howard Drug and Medicine Co.), consisting essentially of extract of plant material, including sarsaparilla, potassium iodid, glycerin, alcohol and water and claimed to be a reliable remedy for scrofula, chronic ulcers, syphilitic affections, etc. (*Jour. A. M. A.*, May 6, 1922, p. 1407.)

COMPOUND FLUID BALMWORT (The Blackburn Products Co.), consisting essentially of plant extractives, including bearberry, a large proportion of sodium acetate, alcohol and water.

WHITLOCK'S CHILD'S LAXATIVE (Whitlock Herb Medicine Co.), containing senna, Rochelle salt, sodium salicylate, soda, alcohol and water.

WHITLOCK'S COUGH SIRUP (Whitlock Herb Medicine Co.), consisting of plant extractives, licorice, sugar, alcohol and water.

WHITLOCK'S CATHARTIC SIRUP (Whitlock Herb Medicine Co.), containing extracts of plants, including jalap, senna, fennel and peppermint, sugar, alcohol and water.

WHITLOCK'S NERVINE PILLS (Whitlock Herb Medicine Co.), containing plant material, including asafetida, valerian, licorice and an ammonium compound.

WHITLOCK'S BLOOD PILLS (Whitlock Herb Medicine Co.), containing plant material, including red pepper, aloes, colocynth, and scammony.

WHITLOCK'S FEMALE CORDIAL (Whitlock Herb Medicine Co.), containing extracts of plants, including senna and jalap, alcohol, sugar and water.

WHITLOCK'S KIDNEY AND GRAVEL MEDICINE (Whitlock Herb Medicine Co.), containing volatile oils, including oil of sassafras, anise, and turpentine and alcohol.

RED INDIAN LINIMENT (Whitlock Herb Medicine Co.), containing oil of turpentine, acetic acid, ammonium chlorid, alcohol and water.

WHITLOCK'S WORM CORDIAL (Whitlock Herb Medicine Co.), containing plant extractives including spigelia and senna, glycerin, a small amount of salicylic acid, sugar, alcohol and water.

WHITLOCK'S NERVE PILLS (Whitlock Herb Medicine Co.), containing colchicin, asafetida and extract of hops.

WHITLOCK'S RHEUMATIC PILLS (Whitlock Herb Medicine Co.), containing colocynth, jalap and guaiac.

WHITLOCK'S KIDNEY PILLS (Whitlock Herb Medicine Co.), containing copaiba, extract of cubes, a trace of oil of turpentine and magnesia. (*Jour. A. M. A.*, May 20, 1922, p. 1556.)

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ORIGINAL ARTICLES

THE TREATMENT OF PELVIC INFECTIONS BY INJECTIONS OF MILK*

GEORGE GELLHORN, M.D.

ST. LOUIS

The purpose of this paper is to call attention to the part which foreign protein therapy seems to be destined to play in gynecology. From observations made in almost all fields of practical medicine the conclusion has been reached that protein substances, introduced "parenterally," that is, by subcutaneous, intramuscular, or intravenous injection, have the faculty of stimulating the cells to greater activity—of "activating the protoplasm." All cells of the body feel this rejuvenating influence, but none more so than those cells which have been weakened or paralyzed by infection. These cells seem to obtain a new lease on life; some of their normal vigor returns and their natural means of defense become re-assembled. After all, the most powerful efforts of throwing off an infection are those exhibited by the affected cells themselves. If the infection is too strong, the cells succumb, but under the stimulus of foreign protein injections they awaken to renew the struggle against the invading microbes. The protoplasm again develops phagocytic properties, the toxins are neutralized by a fresh production of antibodies and ferments, the local metabolism is intensified, and the pus is absorbed. Under favorable circumstances, the infected organ or tissue may thus rid itself of its enemy and more or less normal conditions may be re-established.

If we apply this conception of foreign protein therapy to pelvic infections in general, and in particular to gonorrheal salpingitis, which forms the greater part of such infections, we can imagine that the inflamed and swollen, and even the occluded and distended, tube takes up an invisible warfare against the gonococci and their products and that, if all goes well, the tube may emerge victorious from the strug-

gle, with the cocci destroyed, the pus absorbed, and the tissues of the tube returned to normal or fairly normal size and softness. It stands to reason that only those cells can take up the fight for existence with any prospect of success that have not yet hopelessly and permanently been damaged, and as a matter of fact, practical experience has shown that foreign protein therapy gives a promise of cure largely in subacute and early chronic cases of salpingitis and pyosalpinx and is apt to fail in cases of very long standing.

This description of what goes on in the depth of the pelvis may be crude and anthropomorphic but it will serve to visualize and simplify the intricate and complicated biochemical and morphological changes within cells which are defending themselves against a bacterial poison.

While this struggle goes on beyond the reach of our eyes, yet there are indications and outward manifestations to the effect that these protein injections have made themselves felt. In most cases there are chills and fever soon after the injections, or the patient may have nausea or headache, or feel a general malaise. We call this the "general reaction" and we distinguish it from the "local reaction" which occurs in the affected part itself and consists of a transitory increase of local pain and occasionally a brief increase in the size of the inflammatory tumors.

A number of different proteins have been recommended and used to advantage. At present, a great deal of interest is manifested in the treatment with milk, which was introduced into medical practice by Robert Schmidt, of Prague, in 1916. The results obtained in the treatment of certain internal diseases, eye infections, and joint troubles have been startling, and gynecological experiences have likewise been highly favorable.

The technic of the milk treatment is exceedingly simple. Ordinary whole milk is sterilized either by boiling in a water-bath for ten minutes or, better still, by pasteurization at 80 degrees C. for one hour on six successive days. Five c.c. of this milk are injected into the gluteal musculature, and the injections are repeated at intervals of from three to five

*Read at the 65th Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

days. The amount injected is gradually increased to 10 c.c. The average number of injections in my cases was 8; one patient received as many as 12; a few others had only 4 injections. If a thin and sharp needle is used the injections are not painful, although the bulk of the fluid injected may cause a momentary discomfort. There are no sensitive infiltrations to be expected, as after deep mercury injections.

The general reaction occurred, as a rule, from six to eight hours after the treatment. In about half the cases there was a chill followed by a rise in temperature. Only twice did the fever reach 104 degrees or over (40 degrees C.); in the majority of the cases the temperature was between 100 and 102 degrees, and in some it differed very little, if at all, from the normal. A few patients had also nausea, headache, or a feeling of lassitude. These signs of a general reaction appeared only in the beginning of the treatment. After the second or third injection there was, as a rule, no further disturbance of any kind. The initial intensity of this general reaction seems to have no bearing upon the ultimate outcome, and in one case where the final result was particularly gratifying, it was absent altogether. Even where there has been a general reaction this hardly lasts longer than a day. After that the patients feel markedly improved; they look better and their appetites improve. Blood examinations show that the white count reaches a moderate degree of hyperleucocytosis on the day following the injection, decreases on the second, and returns to the normal on the third day. An anaphylactic shock has never been observed after these intramuscular injections.

Two of my patients exhibited a marked local reaction. They felt "worse off than before" and, on examination, their tubal tumors seemed a trifle larger. After two and three injections, respectively, these patients, like all the rest, stated that they had less pain in the abdomen. Only one patient required four injections before the abdominal pain subsided entirely.

With the exception of three who came to the clinic, all patients were treated in the hospital, either because they were too sick to be about or because I wanted better facilities for careful study. Most of these hospital patients were discharged as soon as feasible and received the rest of their injections in the office or clinic.

What interests us most is the question of results. In all, thirteen patients were treated with milk injections. Of these, ten had a frank gonorrhea as evidenced by the finding of gonococci in the cervical secretion. All had signs of subacute or chronic pelvic peritonitis with thickened and painful tubes. Of these ten gonorrheal patients, six have been cured

completely and have returned to their various occupations. Their recovery dates back from two to four months. They have passed through normal menstruations without a flaring up of their former trouble. The best results were obtained in two women who were still in the subacute stage of the infection. They had pyosalpinx sacs of the size of a fist, and a vaginal incision and drainage of the large fluctuating tumors which bulged into the cul-de-sac seemed almost inevitable. The customary treatment of rest in bed, ice bags, regulation of bowels, etc., had given them no relief. In both these cases the tumors disappeared completely after eight and eleven injections, respectively. Two women are greatly improved both subjectively and objectively but, as they are still under treatment, definite judgment must be reserved. In two patients, finally, there was an improvement of the general condition but locally they were unimproved.

Aside from these ten gonorrheal patients, three patients had milk injections, each for a different and very interesting condition. The first had an enormous abscess following the perforation of the puerperal uterus with a curette. The tumor filled half of the pelvis and extended upward to the level of the anterior superior spine. Fever, peritonitic symptoms, and fluctuation urgently suggested incision and drainage; yet, after only five injections of milk this large tumor vanished entirely and the patient has been enjoying the best of health for more than two months.

The second patient was a woman with a pelvic tumor of obscure origin. She had a severe cystitis and with each micturition large quantities of air escaped from the bladder. The cause of this phenomenon could not be ascertained. Her very poor general condition permitted of no exploratory operation and she was given milk injections to build up her general resistance. The result was very satisfactory; the cystitis improved markedly and the escape of air ceased. This patient will be operated on in the near future.

The third patient presented herself with an inoperable cancer of the cervix and received radium treatment. The subsequent shrinkage of the tumor masses and the formation of cicatricial tissue obliterated the cervical canal and there ensued a pyometra which within a few weeks extended as high as the umbilicus. I tried to open up and drain the uterine cavity but the dense mass of scar tissue defied my attempts. I then put the patient on the milk treatment merely in the hope of ameliorating her desolate general condition and I was amazed and delighted to see a continuous decrease in the size of the uterus. The uterine tumor was only half its former size after the

seventh injection, and today, after the twelfth injection, the uterus is only slightly larger than a normal uterus. Besides, the patient has gained in weight and strength and to the casual observer gives the impression of perfect health.

A few pleasant by-effects were noted in the course of treatment in three patients. In one, a badly infected vaccination healed very promptly. In another, a severe gonorrheal monarthrititis in the ankle joint which had resisted all previous modes of treatment subsided within four weeks and the patient has regained the full use of her foot. The third patient had an ankylosis of the knee joint as a result of a gonorrheal arthritis. There is now a limited mobility in the joint and the patient claims that the improvement is making distinct progress.

By way of summary and conclusions, I wish to submit the following points:

CONCLUSIONS

1. Protein substances, if introduced "parenterally," stimulate the cells of the body to greater activity and particularly enable infected cells to defend themselves against bacterial invasion.

2. Practical medicine has made extensive use of this method in the treatment of microbic infection.

3. In gynecology, pelvic infections due to the gonococcus are the principal field for the foreign protein therapy, but successes may also be obtained in infections due to other causes.

4. Milk has been found to be a very suitable, though not the only, medium for treatment. It is introduced by intramuscular injections. Dosage and technic have been described in the foregoing. No untoward by- or after-effects need be anticipated; in particular, there is no danger of anaphylactic shock. The general condition is improved in every case.

5. Of ten cases of gonorrhea of the tubes, six were cured completely; of these, two had large tumors which disappeared entirely. Two patients were improved. Two were unimproved.

6. Three patients with rather rare pathologic conditions in the pelvis were cured or materially benefited by the milk injections.

7. From personal observations and the study of the literature it appears that mainly the tubes, the uterus, and possibly the bladder are favorably influenced by foreign protein therapy. The ovaries seem to remain refractory. Exudates are brought to absorption, but adhesions are left undisturbed.

8. In order to protect the method from discredit by injudicious use, the cases to be treated should be carefully selected.

9. The gonorrhea of the cervix itself remains unaffected by the treatment. For the sake of preventing re-infection, the cervix should be treated separately.

10. The milk injections are no cure-all. A certain small percentage of failures is unavoidable. But in the majority of cases a complete cure can be accomplished without pain, risk, or mutilation where formerly only serious operations gave any promise of relief.

Metropolitan Building.

DISCUSSION

Dr. J. J. Singer, St. Louis: The use of milk as a foreign protein is, I believe, more for convenience than for anything in the milk itself. We have all heard that patients who do not have high fever are usually the ones who do not do very well. The temperature itself represents, as I understand it, a condition in which the body cells at that temperature are much better able, or show their ability, to fight anything that may be of harm to that individual. Horse serum, bacterial products and milk have been used. Among the three, milk seems to be the one that is most easily procured and, doing the same work, it naturally would be the substance to use.

The injection of foreign proteins into the body has frequently been divided into specific and non-specific action. I judge from the paper that it is the non-specific action of the protein that was considered. The use of the specific protein is noted in tuberculosis in the use of tuberculin. We have used smaller doses of protein made from the tubercle bacillus, and this is considered a specific action against the products of the tubercle bacillus. The protein stimulates the cells against tuberculous protein only. It will also work generally just as typhoid bacilli will do, but it is too dangerous in tuberculous conditions.

The use of milk has been considered in other diseases than in bacterial poisons. We often hear of its being used in asthma. I recently had a patient in my office who overheard me discussing asthma over the telephone, and she said, "Do you want a good cure for asthma?"

"Yes," I said, "we are all looking for it."

"Get some milk and have the patient drink it," she replied.

"How do you figure out milk would cure asthma?" I asked.

"The cows eat a good deal of timothy grass and something forms in their blood that seems to cure asthma," was her conclusion.

If you will analyze the statement you will see the grain of truth. The cow has produced some condition in its milk after having eaten timothy grass which temporarily relieves asthma in many cases.

Dr. C. Lester Hall, Kansas City: We are certainly greatly indebted to Dr. Gellhorn for giving us the most recent remedy for the diseases of women. There is no class of men who will accept this innovation and suggestion sooner than the abdominal surgeon and the gynecologist.

Dr. Gellhorn is a careful student, a sound thinker, and he would not make this report if he had not had sufficient experience to justify the hope he has given us.

It is very remarkable that in the cycles of the practice of medicine we go around and around and come closest to the times of our forefathers, sometimes, to introduce remedies that perhaps were used in a different way with beneficial effect. Milk has been good for the human family from time immemorial. Milk and water have always been good for bathing the eyes of infants. It would be interesting to know

if it were possible that the ordinary use of milk as we have it at our tables has brought about in some cases a cure of pelvic inflammation.

We abdominal surgeons and gynecologists know many cases of acute gonorrheas get well without resorting to pustules. It would be interesting to know that the ordinary consumption of milk might lessen the number of cases of gonorrhea in women and that its use might render other cases immune.

Certainly the treatment is so simple it will take the starch out of the gynecologist who is ever ready for the use of the knife. We will accept it gladly. True, it will cut down the bank account of the man who in a few hours can do work to bring him two or three hundred dollars. But we must be honest first, and accept with great glee a simple method if we can accomplish a better purpose.

It is well known that many women get over gonorrhea. We have all had them—women who have even had pelvic abscesses and recovered sufficiently to become mothers after draining out the pus.

If we can avoid those dangerous operations—and they are dangerous, even with all the care we take—by such a simple method as Dr. Gellhorn has presented it is certainly a God-send to women, to humanity, to the woman who wants to be a mother, and the man who is dejected because he is not a father.

I trust there is more in it than Dr. Gellhorn sees. I trust it will work out a great revolution in the treatment of women. Certainly the report is encouraging in the highest degree and I congratulate Dr. Gellhorn upon it.

Dr. T. J. Beattie, Kansas City: I do not feel like leaving this room without saying a few words with reference to the treatment of pelvic infection with milk. I have watched the Doctor's writings and work the past few years and have great confidence in him. But I have studied the subject of pelvic infection and I am not ready yet to believe his manner of treatment demonstrates anything positive to us.

Let us see what we have in pelvic infection. I think it is one of the most destructive conditions we encounter in the female. I believe when you concentrate the facts you will find nearly all cases of sterility are due to gonorrhea. When a woman has this disease the only way I can conceive the milk injections would be of benefit is in the beginning of that trouble. As the Doctor has said, after it affects the pelvic structures, the patient has a tube that is distended and a certain amount of plastic material thrown around the parts.

If you can examine the cases as they come in the operating room you will find that even though the pus is eliminated you have a tube of no use to that patient. The fact that you destroy the pus does not mean anything. You let the gonorrheal pus be hermetically sealed and it becomes sterile. It does no harm. You get a fatty degeneration taking place in the pus and you have a watery tumor that will only cause trouble by pain and by impairing the function of that organ. It is not always the destruction of that pus that is going to do our patient any good; it is to bring that tube back so that it can functionate. While there are cases that conceive after they have had gonorrhea, I think the percentage is small.

This is the place where we get stimulation for working in any department, and I shall certainly look into this subject and try to agree with the Doctor more than I can at the present time.

Dr. J. W. Connaway, Columbia: I was very much impressed by the remarkable results reported by Dr. Gellhorn in the use of foreign protein—milk—by intramuscular injection in the treatment of pelvic inflammations. I shall try this on the lower animals, as we have like conditions in cattle and swine; the treatment may prove useful in some of the cases of

sterility that are due to recognizable inflammatory conditions of the pelvic organs. We have, in our tests of therapeutic agents on farm animals, the distinct advantage that we can later slaughter the animals and often arrive at definite conclusions concerning the pathological conditions and the results of treatment in a comparatively short time.

Dr. Gellhorn may not have dwelt sufficiently upon the theory of the therapeutic action of the injection of foreign protein. At any rate I know he will approve my adding a word or two. I recall that a number of years ago contagious abortion in cattle was treated by the hypodermic injection of carbolic acid (also that tetanus in horses was similarly treated). These treatments have gone out of fashion but when in vogue many good results were reported. It is not conceivable that the small quantity of carbolic acid which was employed acted as an internal disinfectant and destroyed the microorganisms of the disease; the probabilities are that the good results, if any actually occurred, were due to an increase in the number and activity of the phagocytic cells of the body. And possibly the local destruction of tissue by the carbolic acid supplied an amount of *sterile dead protein* which was equivalent to an injection of foreign protein. Hard tumors, the size of a hen's egg, sometimes developed at the point where the carbolic acid was injected. The ultimate removal of these tumors by nature's process, "phagocytosis," probably necessitated an increase in number and activity of the leucocytes. Dr. Gellhorn, I think, made no mention in his paper of "blood counts" having been made on the cases under treatment; and I would like to ask whether this was done.

Dr. Gellhorn: Yes.

Dr. Connaway: Was there an increase in leucocytes?

Dr. Gellhorn: Yes.

Dr. Connaway: This no doubt was an important factor. The injection of the foreign protein evidently increased the activity of the lymphoid tissues and the production of phagocytes in considerable numbers. And these cells when transported to the foci of disease in the pelvis carried out their normal cell functions of ingesting and digesting and thus destroying and removing foreign substances and tissue debris—simply as cell food; which in these cases happened to be irritant microbes and morbid products in the pelvic lesions. This at least is the interpretation which I would give as a former teacher of physiology who has later given major attention to animal pathology. I still like to hark back to the "wandering cells" of Cohnheim, or the phagocytes of Metschnikoff, and to assign to these a goodly physiological rôle in keeping us healthy and in overcoming pathological processes, even if I do have strong faith in the specificity of certain bacteria as the cause of disease and the value of specific vaccines and sera.

I shall try to verify, in comparable cases among farm animals, the interesting practical results which Dr. Gellhorn has reported in human medicine. I might add that "non-specific protein therapy" seems already to have attracted some attention among veterinarians in foreign countries. At least the German veterinary journals that come to our library contain the advertisements of enterprising pharmaceutical houses who offer (under such trade names as "*Eugallactan*," "*Abijon*," etc.) "Sterile Milk without Saprophytic Protein" for parenteral injection. These preparations are exploited by the producers for the treatment of "periodic ophthalmia" (moon-blindness in the horse), and the traumatic and post-infectious keratitis and iritis, as well as for the treatment of deep-seated inflammations, abscesses and infectious diseases. But, as Dr. Gellhorn has shown, it is apparently not at all necessary to buy a specially prepared bottled product of milk protein, since the physician himself or a properly trained nurse can prepare the

milk protein from fresh, clean cow's milk. The freshly prepared material, moreover, may prove safer than a milk protein that has been bottled for some months, since there is a possibility of the development of toxins in the latter by anaerobes whose spores were not killed in the process of preparation. The ill effects could be misinterpreted as an anaphylaxis or an idiosyncrasy of the patient and the true cause of the mishap be overlooked.

On account of the comparative newness of non-specific milk protein therapy it might be well to proceed with considerable caution in its application to the human patient on account of the possible hypersensitiveness of some individuals. The work of Wells and Osborne reported a few months ago in *The Journal of Infectious Diseases*, August, 1921, on anaphylaxis reactions, with purified proteins of cow's milk, is well worth study. It shows that guinea pigs raised exclusively on a vegetable diet are readily sensitized by very minute doses of purified casein, lactalbumin, lactoglobulin, and an alcohol soluble protein, and that this sensitization is specific for these different milk products; also that the subsequent inoculation of a small amount of the same protein produced severe shock and even death in a considerable number of the experimental animals. They mention that casein is not so active as some of the other soluble proteins in producing anaphylactic sensitization and shock, but that nevertheless its activity is by no means low. This suggests that persons who are strict vegetarians and have not developed "milk immunity" might suffer from anaphylactic shock if milk proteins were employed as a therapeutic agent by parenteral injection. Such results would not be so likely to occur in the bovine species whose food in early life is cow's milk. Whether the milk proteins of the cow, used in the treatment of pelvic inflammations of swine, will prove helpful or harmful I will report to you at some subsequent meeting.

Dr. Gellhorn: I am profoundly grateful for the generous discussion you have given me. May I say that on account of the limited time I omitted some of the points, for instance, the point of leukocytosis which was observed in all cases. It went, to cite but one case, from 17,000 on the first day and 12,000 on the next day, to normal conditions on the third day after injection.

I am tremendously interested in what Dr. Conna-way said and I hope we may be fortunate enough to hear from him in the future.

Dr. Singer has very correctly pointed out that any protein if injected into the blood in sufficient quantity will do the work. Milk has been chosen because it is so handy. You do not have to get it from a drug store. You can get it anywhere. Perhaps it is not the most ideal protein but it is a very practical thing.

My experience is very limited. I believe I said I would not have ventured to present so small a series if it did not reflect in every detail the hundreds of cases collected abroad. This accumulated experience in the old country and in various countries where it has been tried—the bulk of the observations comes from Germany—prove that infections due to gonorrhea are primarily benefited. But I have touched on a case of staphylococcus and two other cases of mixed infection which were benefited.

I had to operate on two cases for complications or sequellae of the tubal infection. In one of these cases both tubes were patent and absolutely normal as far as I could determine by touch and by sight though they had been swollen before the treatment was begun. In the other, the tube was occluded but empty and soft and it contained a yellow lining like an abscess membrane. Perhaps if I had waited that might have disappeared.

I would like to make this plea to you: The milk treatment is not a panacea. It should not be tried in every case in which a woman complains of pain in

the abdomen. It is necessary to select your cases, lest by injudicious use the whole method fall into disrepute. You must be quite sure the seat is in the tube. The ovary is not benefited by the milk treatment; of this I am quite certain from my own and the experience of others. It must be primarily a tubal infection.

In one case in which the infection disappeared there remained a small ovarian cyst. The tube was cured. The cystic ovary remained. That patient can be safely considered cured as far as gonorrhea is concerned.

So a differential diagnosis is necessary, and even then you cannot expect cures in 100 per cent. of the cases. That does not happen in any method. Even if we have only 50 per cent. of cure, is not that a great gain? For I agree with Dr. Beattie that gonorrhea is a very treacherous and destructive disease, and I do not feel able to say that the ordinary conservative methods, after the disease has reached the pelvic cavity, would ever cure it completely.

The method can be tried by everybody, provided you select your cases carefully and do not apply it in cases where it is not indicated.

GLAUCOMA FOLLOWING CATARACT OPERATIONS*

JOS. S. LICHTENBERG, M.D.

KANSAS CITY, MO.

The incidence of glaucoma following operations on the eye, especially dissection of the lens and of secondary membranes, and also removal of the lens for cataract, is well known.

It is spoken of in almost every standard text-book and also in many special monographs. They practically all theorize as to the etiological factor being a blocking of the filtration angle by (1) swelling of the ciliary body, (2) swelling of the cortical lens substance left in the anterior chamber, (3) plastic iridocyclitis, (4) inclusion of iris and lens capsule in the wound, (5) entrance of vitreous into the anterior chamber and into the filtration angle (Weeks), (6) the albuminoids of the lens substance in contact with the aqueous may cause swelling of the colloids (Fisher), (7) proliferation of corneal and conjunctival epithelium into the anterior chamber, (8) tags of tissue caught in the incision in such a way as to drag on the iris or ciliary body.

Woods in his system of ophthalmic operations, speaks of post-operative glaucoma being rare, and in parenthesis says 2 or 3 per cent. It seems to me that this is not so rare. He also says that the glaucoma may be simply a revival of an old process.

As long ago as 1896 Treacher Collins reported .64 per cent. loss of eyes from glaucoma in a series of 1,405 cataract extractions at Moorfields in London (Royal Ophthalmic Hospital).

*Read at the Sixty-Fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

H. Knapp reports that 2 per cent. of all discissions had severe glaucoma requiring iridectomy. (Wooten: Cataract Extraction. Edited by J. H. Clairebourne.)

In Priestley Smith's book on glaucoma, published in 1891, articles by Natinson and Treacher Collins show that glaucoma can follow any operation for cataract, no matter how the incision is made, with iridectomy, preliminary or at the time of the operation, or without iridectomy. Both of these articles were based upon microscopical examination.

That the intracapsular operation is also not free from post-operative glaucoma is shown by a special paragraph in Col. Smith's book on the treatment of cataract. He says this condition sets in between the tenth and twentieth day after operation, generally near the tenth, or as soon as the wound is soundly healed. The performance of iridectomy at the time of operation has no prophylactic influence. It occurs generally in subjects of gout, diabetes, of advanced life or a combination of these conditions. Smith suggests leeches to the temple and a mercurial purge. At the end of 24 hours if there is no improvement, a paracentesis through the limbus of the cornea with a Graefe knife, to be repeated every second or third day for three or four times if necessary. If a little vitreous escapes it is of no importance.

In general, the medical treatment is first with miotics, and if pain is severe, dionin locally and morphin, preferably hypodermically, both to relieve pain and to contract the pupil.

As a rule medical treatment is ineffective and some surgical measure must be used. The case must be studied and an appropriate operation be employed. The removal of swollen lens substance, iridectomy, sclerocorneal trephining, the release of bands causing traction on the iris or ciliary body, etc., must be considered.

In conclusion, I wish to report three cases:

CASE 1. Male, aged 19. Right eye, congenital cataract; discission; in 24 hours' onset of acute glaucoma with pain and vomiting. Tension 3 to fingers. Miotics and morphin failing to relieve, the lens substance removed and an iridectomy made with prompt recovery. Vision equal 20/40 with lenses.

CASE 2. Female, aged 56. Right eye, senile cataract. Physical examination negative. Simple extraction of lens, slight iritis and recovery. Vision with correction 20/30. In about six months patient returned with the capsules thickened and a discission was made with fairly prompt recovery. Several months later while in Colorado sudden attack of acute glaucoma which responded to miotics; she had several attacks following this and finally returned to Kansas City with an acute attack. Tension registered 60 milligrams of mercury with the Schiotz tonometer. Sclerocorneal trephining combined with iridectomy. Recovery from operation slow and the blood in the anterior chamber very

slow in absorption. Final tension 20 to 25 Schiotz V. equals light perception only.

CASE 3. Female, aged 60. Left eye, senile cataract, simple extraction. Six months later discission. Vision equals 20/20 minus with lenses. Patient was not seen for five years then she came in to have the other eye operated and with a history of diminished vision in the left eye. Vision at this time was 20/50 with lenses with some contraction of the visual field and a slight cupping of the disc. Tension equals 40/Schiotz. The iris was ballooned (iris Bombe) excepting a small groove superiorly. This was due to an adhesion of the pupillary edge of the iris to the lens capsule. I passed the narrow Graefe knife at the horizontal meridian through the limbus into the anterior chamber and through the iris with counter puncture through the limbus to the opposite side of the cornea as practiced in the Fuch's clinic and described in Meller's Ophthalmic Surgery. Recovery prompt. Tension equals 21 Schiotz and vision 20/50.

Rialto Bldg.

DISCUSSION

Dr. A. W. McAlester, Jr., Kansas City: I have only had one case of glaucoma following cataract extraction in my own practice and do not want another. In consultation I saw a case last week of glaucoma following extraction. The patient had glaucoma in one eye. An Elliott operation had been done. That eye was blind. In the other eye a cataract had been extracted about five years before. Every possible operation that has been suggested for glaucoma had been done on the eye that had the lens removed and the patient still has a glaucoma, with tension of two plus and continual pain. Miotics bring about some relief.

The last operation Dr. Lichtenberg spoke of is a procedure devised by De Wecker in 1870, when he tried to refute the claims of von Graefe for iridectomy. This operation was done empirically and it relieved some cases of glaucoma. In trying out a series of different operations he hit upon one in which he achieved a certain amount of success.

Most of the cases of glaucoma following extraction go on to total loss of the eye and Dr. Lichtenberg is to be congratulated on the successful outcome of his cases.

THE MISSOURI BLIND-PENSION LAW FROM THE OPHTHALMOLOGIST'S STANDPOINT*

H. D. LAMB, M.D.

ST. LOUIS

The Missouri Blind-Pension Act was introduced for the third time as a constitutional amendment in the general election of 1920. It was then passed by popular vote with the required two-thirds majority. In the following spring of 1921 the working details of the act were agreed upon by the Missouri General Assembly. The supervision of applying this blind pension law was wisely put into the hands of the very efficient Missouri Commission for the Blind. Through no fault of the Commission this pension law was evidently drawn up hastily and without medical ad-

*Read at the Sixty-Fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

vice. The state legislators framed only an outline in both the ocular and economic requirements for the blind pensioner. As ophthalmologists we have seen the limitations of this law as applicants for the pension appeared before us for examination. Perhaps we have become quite incensed (not without reason) in condemning its discrepancies and injustices. We must be patient, however, knowing that the act as yet is in an experimental stage. It must be remembered too that the blind pension is now a part of the Constitution and has evidently come to stay. It therefore behooves us as ophthalmologists of this state not to condemn but to lend our aid with constructive criticism in obtaining a just blind pension law, clearly and fully defined.

In the law as drawn up, we are naturally most concerned with the required limit of vision. The maximum of 20-450, in my opinion, was wisely chosen; this fact I feel has been proved in the last year by results obtained in applying the pension law. Argument in regard to this visual limit is all on the side of its being too stringent or too low, since industrial blindness is generally considered as about 20-200. Nevertheless the blind pension law as it stands has listed as eligible approximately 5,000 applicants in the ten and one-half months it has been in force. Probably this number will be decreased at the next meeting of the legislature by changes in the law to be introduced by the Commission for the Blind, these changes to be made principally in regard to the applicant's dependency. But until we see what these contemplated changes amount to it seems best to let the present 20-450 stand as the maximum amount of vision.

The law specified nothing in regard to applicants with vision better than 20-450 but with very narrow visual fields. There have been perhaps a dozen of such cases appear before the Missouri Commission for the Blind during the time the pension law has been in force. The majority have been cases of glaucoma, a few had retinitis pigmentosa. It is well known that any individual with a visual field for form of 15 degrees or less is very helpless, however good central vision may be. When changes are made in the blind pension law, there should certainly be added a clause to include this type of case. It might be suggested that where the visual field for form has diminished to 15 degrees or less, such applicant be considered as eligible to receive the pension, no limit being put upon the amount of central vision. Cases with central sight only affected have offered no difficulty, since in these cases one can proceed according to the exact amount of vision, it matters not that this vision is eccentric.

The type of cases however that have caused most perplexity to the examining specialist has been those in which with vision of less than 20-450, there was a reasonable probability that an operation would result in vision considerably better than that. There was absolutely nothing in the law on this point, so that no doubt quite different procedures were followed in similar cases of this kind. Needless to say, these cases were practically always those of cataract. It is also quite possible that an eye with a dense central scar might in certain cases have its vision improved by an iridectomy from considerably below 20-450 to a vision much better than that.

I think that almost everyone will agree that these individuals should be compelled to permit operation before receiving the pension, provided of course there is no contraindication in the general condition. An exception however should be made where there is but one remaining eye having vision of some appreciable service. An applicant with vision of say motion of hand at two feet or greater in the only eye with vision, should not be compelled to jeopardize it by an operation. Those who have worked much among the blind well know how highly a very small amount of vision is valued. Might we then suggest as a provision to the present blind pension law the following: "That in those applicants with two seeing eyes, neither of which has better vision than 20-450, the eye with less vision (provided operation is indicated) shall be operated before the blind pension is granted. Operation shall be required also in those cases with one seeing eye, where vision in such eye is less than motion of hand at two feet. Where vision in this single eye is motion of hand at two feet or better, then operation shall not be required upon such eye." Of course when the vision in the one remaining eye drops to below motion of hand at two feet, as it is certain to do sooner or later in cases of cataract, then operation should be required; now such applicant has nothing to lose and everything to gain. The weak spot in this procedure obviously lies in the difficulty of later re-examination after the pension has been granted. These cases with one seeing eye offering marked improvement by operation would have pension papers filed separately. Such applicants would be subject to re-examination about every six months or forfeit their pensions. It may be added that in the exceptional case with two seeing eyes with vision less than 20-450, where the eye with the better vision is the only one which offers any hope of improvement by operation, then if vision of this better eye is motion of hand at two feet or more, operation shall not be necessary.

Applicants whose ocular condition could probably be benefited by treatment to such an extent as to increase their sight beyond 20-450 are to be considered in the same class as the operable cases. Trachoma is the cause of blindness in the great majority of cases where treatment is indicated. Improvement in trachomatous eyes is usually quite slow with the best of therapeutic procedures, which of course vary with the individual case. The blind pension might be granted to such cases only on the condition that they appear before the eye specialist for treatment. There are undoubtedly applicants who would prefer having the pension rather than their sight. When the vision in either eye became better than 20-450 the pension would be withdrawn.

Now, no doubt, many are saying to themselves, "who is going to pay the railroad fare to an eye specialist, the board and room or hospital charges of these cases who are suitable for operation or treatment," for the great majority of the pension applicants have nothing. This is the point where the plans we may make will strike a snag. There is no sense in telling applicants how much they might be benefited when such help is entirely out of reach because of economic reasons. The Missouri Commission for the Blind is doing all and more than is humanly possible in preventing blindness, supplied as it is with pitifully inadequate funds. Perhaps the state legislators "might be shown" that it would be much less expensive in the end for the state to advance sufficient funds to the Commission for the Blind for treating and operating these cases, saving itself in many cases a later outlay of \$300 a year each. The need is great, particularly in the case of trachoma which has caused a tremendous amount of blindness in Missouri. It is most wasteful too when we consider how trachoma can be cured with treatment begun at all early in the course of the disease.

It will be remembered that at first the examination of applicants for the blind pension was performed solely by oculists. There soon began to be much complaint however that many of the blind living long distances from an eye specialist could not get to him for examination, some because of lack of money to pay their way and that of a guide, others because of being feeble, crippled or bedridden. In July of last year at a special session of the General Assembly, a new provision to the pension act was added, in which the Commission for the Blind was instructed to appoint a general practitioner to examine applicants in each of the counties where there was no eye specialist. This procedure no doubt was necessary under the conditions, but I am sure the general physicians themselves would be the

first to say that it was an unwise step. I have personally gone over each of the 5,000 pension application papers and feel that I speak with some authority. If there is any value in special training for any work then the specialist is certainly better able to do his own work. Of course it can be said that it does not take the specialist to see that many applicants are totally blind or nearly so. But it is just as true that there are many more applicants who need the specialist to determine if they are within the visual limit, much more so to find out what was the cause of blindness and whether glasses, treatment or operation would improve vision beyond 20-450. The general physician took up this work in most cases because there was no one else to do it; he deserves great credit for his thoughtfulness and self-sacrifice. Unless more eye specialists are willing to put themselves to some loss of time from their offices and personal discomfort, conditions will have to remain as they are at present. My suggestion would be that the counties where there are no competent eye specialists be divided up among the specialists of the larger places; an oculist or perhaps more than one to be responsible for examining all applicants in such county. That of course would necessitate the specialist making trips to that county at intervals. His expenses at least must be paid by the Commission for the Blind, which would be an added reason for the state to furnish them with a sizable working fund. He would probably not have time to visit the feeble and bedridden blind living some distance away from the railroad. For that matter it is questionable whether all those aged individuals and those who would be totally incapacitated even if they had good sight are justly entitled to a pension for the blind. Much might be done by such specialist in the prevention of blindness and as oculist-consultant for the county to which assigned. The alternative to this plan is to have a competent eye specialist give all his time to examining applicants and advising in the prevention of blindness throughout the state. The latter procedure does not seem practical; the state is too large, some applicants would have to wait a very long time before this official examiner could reach them; also a competent oculist probably could not be obtained for the salary the state would be willing to pay.

There are practically no statistics on blindness in this country based on the findings of eye specialists in a large number of individuals. It was consequently thought, early in the application of the blind pension law, that here was a splendid opportunity to obtain fairly accurate statistics on the causes of blindness in several thousand blind. Data from

the application papers for the blind pension are being assembled to make up such statistics. Only the causes of blindness as determined by eye specialists are used in making up the table of percentage causes of blindness. However in regard to vision all the cases are used. As one who has worked for ten years among the blind students at the Missouri School for the Blind I can say that the determination of the causes of blindness is frequently very difficult and sometimes impossible. In the adult blind there are two classes of cases in which it is impossible to make a diagnosis solely from the ocular findings; one that of phthisis bulbi and the other where dense lens opacities obscure fundus changes.

What should be said in regard to the work of the oculists in the examination of blind applicants, as shown on the pension papers, is entirely for the sake of obtaining the most accurate facts on these papers and therefore the most accurate statistics from them. The diagnosis or cause of blindness, where it can be determined, should be the name of an ocular condition and not that of a general disease. This is the principal distinguishing feature between statistics on blindness as determined by eye specialists and those determined by laymen. The latter, as for example the United States Census on Blindness, gives in many cases as the cause of blindness simply the name of a general disease as "measles," "small-pox," "uremia," "syphilis," "meningitis," etc. The place where an ocular condition is not to be given as the cause of blindness is in the case of trauma or burns, in which the effect on the eye is direct. It is earnestly requested in the case of trauma or burns that the active agent be stated as "knife," "dynamite explosion," "stick," "lime," "sulphuric acid," etc. There is much use of the one word "congenital" on the pension papers as the cause of blindness. Medically speaking there is no such condition as congenital blindness; there is only blindness resulting from some congenital disorder, as buphthalmos, congenital cataract, congenital corneal opacity, etc. The exact ocular condition, where it is possible to determine it, should be stated on the pension papers. The designation of the cause of blindness as simply "retinitis" is also confusing, since this disorder can occur in many forms.

The exact vision for each eye should always be stated. The number of feet at which fingers were counted or at which the direction of hand movements were determined was not always designated. It should be remembered too that the one word "blind" as a mark of the degree of vision is without definite significance. There are pupils in our state school for the blind with vision of 20-120.

In conclusion, the blind pension law has put

new responsibilities on the ophthalmologists of the state. If we shirk this public service we will be giving our opponents in the various cults an argument for allowing them to enter such work. Here is more state legislation affecting strongly a part of the medical profession in the passage of which our profession took no or very little part. It is an added reason why organized medicine must exert itself more actively in state legislation, for only thus can the physical welfare of the state be safeguarded.

Too much credit cannot be given to Mrs. Anna F. Harris, Executive Secretary of the Missouri Commission for the Blind, and her assistant, Miss Daisy M. Connor, for their share in the work of applying this pension act. In addition to their usual large responsibilities administered with meagre funds and very small force of workers, this new work was put into their hands for oversight and direction. They were given no additional funds or helpers. We can abundantly testify to the patience and fairness to the blind which always actuates these able workers.

The State Auditor, Mr. Geo. E. Hackman, and his helpers also deserve special mention for the care, thoroughness and promptness with which they have performed the work of listing the applicants and paying the pensions.

826 Metropolitan Bldg.

DISCUSSION

Dr. F. E. Woodruff, St. Louis: In the first place I wish to compliment Dr. Lamb on the thorough, painstaking way in which he has investigated the applications for pensions as filed with the state auditor. The figures which he has at his command are extremely interesting and instructive.

The question before us is not should monetary relief be offered to the blind, but the present law is to be regarded from the ophthalmologist's standpoint alone.

We will pass over the failure of the law to specify more particularly regarding certain features. The most important factor in the treatment of the blind will also have to be passed over as not being germane to the question. That is the question of prevention of blindness. This is a larger question than the relief of the dependent blind and would require a lengthy paper to cover the field. There is no provision made for the care of the poor who have remediable eye trouble, such as trachoma, which is one of the most prolific sources of blindness. If trachoma were prevented or even treated, it is quite possible to prevent blindness. It is a short-sighted policy that allows a man to go blind and then give him a monetary consideration for life, instead of preventing the blindness and the spread of contagious diseases, and keeping this individual as a self-sustaining member of society instead of an added burden to the already overtaxed citizenship. Trachoma, as you all know, is prevalent in certain sections of our state and is a disease which spreads not only among the various members of a family, but throughout the entire school district and is highly contagious. The law is manda-

tory in allowing the blind relief to all who apply, unless they have a certain income (\$780 per annum). This relief, \$25.00 a month, is the same for all, irrespective of the district in which they live or the number of dependents that they may have, or the amount of income that they may have. This relief may also be given to those who may be in state or private institutions. Those who are being educated at the Missouri School for the Blind are also eligible for the pension. This certainly was not the intent of the law. Those who are already recipients of bounty at the hands of the state or individuals, to the extent of having a place to live as well as all of their needs provided for, should not, it seems to me, be included under this act. The applications show that many are suffering from remediable trouble. Thus it is easy to see that a man with cataract, for example, may apply for pension, have it granted and then after a successful operation be able to see and still draw a pension. This is true not only with regard to cataract, but trachoma and certain other diseases as well. No provision is made for the re-examination of those who have once received this pension. It is necessary, in my opinion, that a re-examination should be provided for, at stated intervals. There are certain injustices which Dr. Lamb has called attention to, such as disability due to very narrow fields of vision for which no provision is made. The matter of examination by thoroughly qualified ophthalmologists is a subject which should be carefully provided for. There are many cases which are difficult for the ophthalmologist to classify. There are of course malingerers. The question as to whether the blind can be made to see, at times, demands all of one's ability and evidence should be most carefully weighed. As the matter now stands general practitioners are in certain localities making these examinations with great credit to themselves. We have letters from some, however, saying that they feel incapable of coping with this question in certain cases. The suggestion that an oculist be employed to do this work and with it make suggestions as to the remediable cases is a good one and would save the state some money, but more than that it will restore to many individuals the ability to provide for their own needs and be a help rather than a burden to society. It is hoped that when the legislature next convenes some of these conditions may be remedied.

Dr. A. W. McAlester, Kansas City: The Missouri Commission should be able to put enough rulings in effect to overcome the shortcomings of the law. A few rulings by it would probably take care of most of this trouble without the enactment of more laws. I do not know that there is any law that would prevent them from making certain rulings. They should get out a blank on which an oculist could tell the difficulty with the patient's vision—whether or not it could improve with glasses. The blanks they send out are incomplete. If they get statistics from those, it will be because someone has written in more than the blanks call for.

The county poor laws are such that the county courts could be compelled to provide the necessary funds for transportation and proper treatment of the cases by proper application by a petition signed by citizens of the county.

I would like to have the Commission get out a better blank giving full information of remote and immediate cause of blindness, and whether glasses would improve the condition. I have had two patients come into the office with cataracts who refused to have their eyes operated. One was the wife of a farmer and mine owner in Lafayette

County with an income of \$8,000 a year, who made application for a pension of \$25 a month!

Dr. Lamb: No doubt in the next legislature there will be made many changes in the blind pension law. From the economic standpoint there is much room for improvement. At the last meeting of the legislature a great deal of the work of helping to draft this law was taken out of the Commission's hands by the United Workers for the Blind and by others. It would be best if the Commission had the entire handling of the changes to be made in this law.

In the matter of the application papers, as Dr. McAlester brought out, there should be changes. For instance, it is asked on the application form: "Is there a chance of curing the blindness by treatment?" Where treatment would not help, some, particularly the general physician, would fill the form by stating that there was no hope of improvement by treatment, when in fact there might be a good chance of increasing vision by operation. There will be improvements made in this regard also if the drawing up of the application papers is left in the hands of the Missouri Commission for the Blind.

Dr. Lichtenberg spoke about the great need of an eye hospital for operations on persons unable to pay. There is a movement now on foot in St. Louis to put an eye hospital in that city for the treatment of cases throughout the state. There are many persons going blind who are unable to get to a specialist for treatment and many cataract cases unable to be operated upon for lack of sufficient funds to pay their way in a hospital. The state could advance funds, although I think the present plan is to get sufficient endowment to keep up such a hospital.

Dr. Jos. L. Lichtenberg, Kansas City: I want to commend the paper of Dr. Lamb and the discussion of Dr. Woodruff as covering almost every possible point.

There is something said about patients who are themselves practically dependable, children for instance, but who have relatives who can support them, and should do so. Such cases ought not to be made dependent upon the charity of the state. If my father were blind and I could afford to support him I should not ask charity from the state. I have had experience where very well-to-do people have come up for little twenty-five-dollar pensions. I think the law should provide that such people should not have a pension.

I also find quite a number of cases are bedridden. I have gone to them rather than have them brought to me. I find in some of the neighboring counties there is no competent man to examine these cases, I have given up an afternoon and gone up there, had these cases collected, and I have gone over them as a matter of courtesy to the local physicians and to help these people out. I have taken the position when I can get vision greater than 20/450 with glasses, that the patient does not come under the law. I think every man who examines these cases ought to be competent to refract and see if they would come under the law with the aid of glasses.

Many of these poor people scattered throughout the state could be used as clinical material if the State of Missouri would be generous enough to start a medical school, wherever it was decided to establish it. Either at the expense of the county or state, these people could be sent to such a clinic and be taken care of if there is an opportunity to improve their vision by medical treatment or surgical measures.

Dr. Charles H. Wallace, St. Joseph: This is a commendable and important paper for the profes-

sion to hear and it is unfortunate that the essayist did not have a larger audience.

I know of no disease that preventive medicine has a more important function than in trachoma. I remember an incident some years ago that well illustrates the point:

A threshing machine crew had a member who was suffering from granulated lids. It is the custom of these crews to use a common roller towel furnished by the farmer where they are threshing. This man could be followed by the development of one or more cases at every farm house, it having been communicated by using a common basin and towel.

Dr. McAlester makes a good suggestion as to the enforcement of our present statutes, for the board to enlarge upon its powers by making by-laws applicable to the condition as found in the country.

MEDICAL ECONOMICS*

WILLIAM R. BEATIE, M.D.

SPRINGFIELD, MO.

Definition.—Relating to money matters or to the means and methods of living. This being true I presume that a discussion of anything affecting the medical man in a financial or remunerative sense will be justifiable and permissible in this paper. In the first place, I would like to make the assertion that doctors as a class are considered poor business men, and from the number of callers, circular letters, advertising, oil stock, land schemes, co-operative stores, rubber tire stocks, etc., that they receive promoters evidently consider us "easy marks;" and such many of us have proven to be. Our incomes usually being small we get to doing some autistic thinking when the promoter comes along with his sure chance to get wealthy in a short time, and we imagine ourselves soon upon the retired list, with big incomes, and we fall for the promoter's soft stuff. But we soon find that the big things promised do not materialize. In the parlance of the oil stock promoter, they "skidded the drill" and the promoter has the money while the poor, overworked doctor has the experience. We fully believe that our profession ought to and does have a business side and that we ought to study that side as we do the professional side. We naturally do not take a brother doctor's word for opinions in professional matters without due and thorough investigation of the matter. Neither should we take the promoter's word, but, instead when he comes in, ask him to see your banker and explain the proposition to him, and if the banker approves it and is satisfied that it is a good proposition then come back. They seldom come back.

In financial matters it* will pay the doctor to consult a financier or a specialist. Our bankers are always glad to give us advice and

it will nearly always be advice on the conservative side.

Medical organization and practice to promote efficiency require two things: First, that the public make the fullest use of efficient practitioners. Second, that medical men receive adequate incomes to provide the means and methods necessary to efficiency. These two things are interdependent. This we may as well call an efficient future for the practice of medicine and surgery as there is now a strong tendency toward social or state medicine and group medicine. There is an effort being made to define state medicine. The Council on Medical Education and Hospitals of the American Medical Association at the recent Boston session reported that in their opinion organized medicine is preferable to state medicine, that medical problems should be solved and medical work done by the medical profession itself. It opposed creating out of the medical profession a huge political machine which shall enter into every town and enforce laws providing for medical care of all the people and while it favors extensive public health organization to secure the benefits of preventive medicine, it also stressed the great importance of the general practitioner and favored further organization of the medical profession so as to provide the benefits of modern medicine for all our people.

This seems to be a conservative and a constructive report acceptable to all in the rank and file of the profession. The report further says to those who have followed the development of medical education and medical practice during the last 25 years and noted the great increase in the number of specialists, that the overshadowing importance of the broadly trained practitioner in modern scientific practice has become more and more evident. For example, one medical man can take care of the general practice in a community of one thousand people; 90 per cent. of the ills which occur in such communities are the ordinary things in practice, such as colds, infantile diseases, pregnancies, broken bones, epilepsies, insanity, heart lesions, Bright's disease, gall-stones, colic, and appendicitis. All these cases can be better taken care of by a broadly trained general practitioner who lives in the community and who is always accessible, than by any scheme which employs specialists only. One of the most important functions of the well-trained general practitioner is to decide when the service of a specialist is needed. This decision cannot be left to the patient nor to the patient's family. They are not competent to decide.

The American Medical Association is emphatically opposed to state medicine and to any scheme for "Health Centers," group

*Read before the Greene County Medical Society, 1921.

medicine and to diagnostic clinics, either wholly or partly controlled, operated or subsidized by the state or national government. The Illinois delegation presented a similar resolution but it included compulsory health insurance. Michigan and New Hampshire followed with similar resolutions.

The question arose, what is state medicine? Dr. Delphy of New York defined it: "The practice of medicine by state employed physicians." Dr. Rooney of New York regarded it as any method provided for the practice of medicine under the direction of subsidy or control of the state or national government, excepting those functions having to do with preventive medicine and public health, which do not involve the treatment of disease except that which is communicable. The whole attitude as expressed by many thoughtful men was opposition to the state interfering with the proper prerogatives of the general practitioners.

The final action was this resolution:

Resolved, by the House of Delegates of the American Medical Association, that it approves and endorses all proper activities and policies of state or federal government directed to the prevention of disease, and the preservation of the public health.

This resolution was well received. Negatively it opposes the invasion by the state and federal government of essential clinical medicine. It does not oppose the state in furnishing diagnostic aid or undertaking the treatment of infectious diseases when the public is endangered, nor the medical and sanitary research which is essential to all. So we are glad that the American Medical Association has gone on record as advocating the things that our Society has been contending for.

There is another warning that is being sounded by some, for Dr. Bevan said in an address lately that he was opposed to the plan called full time clinical instructors by our universities. He believes that it is an entering wedge by big money to control medical education. He thinks the plan a failure and attributes it to the scheme for socialization and state control of medicine. Someone has recommended that we drop the term state medicine and substitute "state preventive medicine," which includes sanitation, diagnostic work, treatment only as it is necessary in preventive work. If the state quarantines smallpox victims in a legally controlled hospital the state is in duty bound to give them proper medical treatment to prevent the spread of the disease. But the state is invading the rights of the citizen if it insists on treating rheumatism, confinement cases, removal of tonsils, etc., and the medical practitioner has a just grievance if the state invades his own special field with a socialistic scheme in a

democratic and non-socialistic republic. If the citizens of the United States want a socialistic government, including state socialized medicine and a lot of other things of like type, let them vote the socialistic party into power, electing socialists to Congress in sufficient numbers to dominate the legislation. But until the citizens of this country do this thing, then the propagandists are simply boring from the inside and are disloyally undermining our government when they attempt piecemeal to socialize an important factor in our national life.

The Medical Profession.—We believe that the medical profession should have a uniform national medical law, that will apply alike to graduates of medical schools or graduates of non-medical colleges of whatsoever mode of practice. The basic qualifications in the fundamental branches, such as anatomy, physiology, pathology, bacteriology, diagnosis, etc., being the same, and requiring all who wish to practice upon the sick to undergo the same examination, leaving out of the examination the mode or method of treatment, for this is the bone of contention. Have the qualifications sufficiently high that anyone who is able to pass satisfactorily be allowed to treat the sick, whether he be medical man, osteopath, chiropractor or some other kind of a practitioner, thus divorcing the licensee and registration of doctors from politics. And thus have a national reciprocity law, so that when a person is a graduate and is qualified to pass such national requirements he will be permitted to practice in any state in the United States or our provinces. The movement for such laws must come from within our own ranks. We ought to be willing to make a standard of efficiency that should be equitable to all and not discriminate against any, for the courts will rule as they did recently in Illinois in the case of the chiropractor, "that this law was discriminatory and therefore unconstitutional." This came because of having different qualifications for different sects of medicine.

The next subject is the remuneration for our services. A doctor should be paid for his services the same as the grocer, butcher, and other business men. If the doctor has adequate income and is not worried with the problems of finance to meet his obligations, he can better apply himself to the saving of lives and thus render society a more highly and efficient service. Doctors should adopt and carry out a system of collecting accounts by sending out statements regularly of his account while the service is fresh in mind. If there is no response from the statement, put the matter in the hands of some good collector, and let him worry with them and devote your time to someone who will appreciate and

pay. Let's not be too anxious to render service to people who do not pay, for there are hundreds of people that get their service by just going from one doctor to the other. Educate the dear good people that doctors have to pay their bills the same as everybody else and *they* must pay if he pays. If they get angry and quit, should they be compelled to pay, do not lose any sleep, for nine times out of ten they will come back if your services have been satisfactory. If they do not come back there is a good deal of comfort in the thought that you have been paid for your service.

Group medicine is now at white heat. Many doctors are grouping together and organizing clinics, each man having his special field work, devoting special study to his chosen course and thus better qualifying himself to give efficient service, not specialists, but only general practitioners devoting special time and study to a certain line. This is commendable and I think is proving a help to the group both professionally and financially. But let the general practitioner look up. The biggest specialty of all is the general practice of medicine and surgery. And physicians are now so well educated and hospital trained that there is absolutely no occasion for the up and doing doctor to yield the palm to the specialist except in cases wherein the services of a real specialist are actually needed. The general practitioner can readily learn a lot of technic if he has not already done so and he can use it more sensibly than is apt to be done in the case with the average young man who rushes into a specialty almost immediately after graduation. There is plenty for the physician of middle age to do if he will and he can do it well and thus be enabled to live well.

There is another matter that should be considered—contract lodge practice and department store medical practice. Contract practice, if the doctor gets his regular fee is all right, but lodge practice where the lodge collects say \$1 per month from its members and employs a doctor for the members, agreeing to render all services for the family except obstetrical practice and give the doctor the pro rata of the money paid in, which I am told at times goes as low as 50 cent a call, ought to be condemned by every high minded physician in justice to himself, his family and his professional brethren. The large department stores now maintain prescription departments and sell drugs and are trying to maintain medical departments with hired physicians in charge to examine and prescribe for the ill. This will be only another step in the evolution of medicine. When this happens medicine will lose its last vestige of self-respect and sink in the miasmatic mists of commercialism to

the lowest level it has reached. Any physician who hires himself out to a department store for this purpose deals his brother practitioner a foul blow and throws the honor and good repute of the profession as well as his own into the garbage pail. Our regular fees for services are the cheapest professional services on earth considering the vast amount of worthy and unworthy service that we render gratuitously, so why should we barter our services away to those who are abundantly able to pay? No one else in any other calling does and Oh—why should we? Echo answers, Why?

318 College St.

A STUDY OF INTRADERMIC VACCINATION. REPORT OF SIX HUNDRED AND TWENTY CASES*

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INDEPENDENCE, MO.

During November and December, 1921, I did 733 intradermic vaccinations, for which I have card records. Of these, 113 patients who were injected failed to return for inspection and I have been unable to reach them. Therefore this report is based upon the study of 620 cases whose records are complete.

Intradermic vaccination is the injection of the virus of vaccinia or cowpox between the layers of the skin for the purpose of immunizing against smallpox or mitigating its effects.

Intradermic vaccination must not be confused with subcutaneous vaccination.

While intradermic vaccinations have been done, as evidenced by personal communications with physicians and by the history of patients who present themselves and ask for vaccination by hypodermic injection, there are not many reports in the literature of the results of these vaccinations.

Historical.—L. T. Wright reports 227 intradermic vaccinations, using a mixture of half water and half the usual phenol-glycerin vaccine. This work was done on men who had previously failed to have as successful a vaccination by usual scratch or incision methods, and reports 70.4 per cent. positive results. He mentions that he noted the immunity reaction and vaccinoid reaction as described by Kolmer.

Leiner used one-tenth c.c. of diluted vaccine with a reaction appearing in from 4 to 6 days. These children were immunized as was proved by subsequent failure of the usual methods of vaccination.

Results of Vaccination.—The ages of persons injected was from 4 months to 75 years.

*Read at the Sixty-Fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

The results of intradermic vaccination of 620 cases follows: Of those not previously vaccinated, 397 cases, primary takes, 321; failed to take, 76. This gives a percentage of primary takes of 80.9 per cent.

Of the 76 that did not take the first time, 33 did not reappear for vaccination; of the 43 vaccinated the second time, 16 took and 27 failed to take. This gives a percentage of takes of 92.8 per cent. on those who were vaccinated more than once.

Of those previously vaccinated, 200 cases, primary takes, 108; failed to take or immune, 92.

This gives a percentage of takes in the previously vaccinated, not excluding the immune, of 54 per cent.

Of the 92 who failed to take, 16 tried the second injection and 8 of these took.

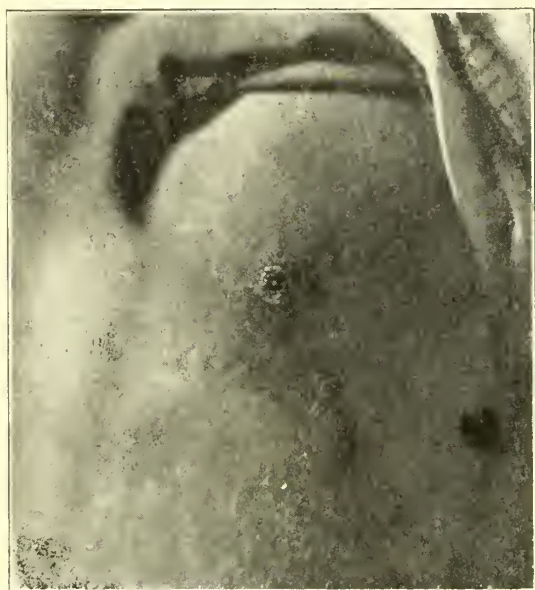


Fig. 1. Primary vaccination. Girl, age 12 years.

Of those claiming to have had smallpox (23 cases), 10 took. Of course it must be remembered that I had to depend upon their history as to the smallpox, as they claimed to have had it in mild form, yet it is significant and should teach us not to accept lifelong immunity to smallpox as a fact but to remember that immunity to smallpox, whether acquired by having smallpox or by vaccination, is a relative immunity. This is further evidenced by a personal communication from Dr. W. L. Gist, superintendent of the Kansas City General Hospital, to the effect that during a recent virulent epidemic, two persons who undoubtedly had previously had smallpox developed smallpox a second time.

Types of Reaction.—The typical, fully-developed reaction is an umbilicated pustule.



Fig. 1a. Primary take. Woman, age 40 years.

The first appearance is a small papule in from four to eight days or even as late as the twenty-first day in one case. (See Figs. 1, 1a, 1b.) The papule has a small areola which enlarges slightly as the papule becomes in one or two days a vesicle. In two or three more days clear contents of the vesicle has the appearance of pus. Drying then ensues and a crust forms and drops off in from two to three weeks from the start of the reaction.

If the vaccine is not injected intradermically a vesicle may not form but a papule or a papulo-pustule. (Fig. 2.)



Fig. 1b. Vaccination on leg of girl of 4 years. She did not suffer any inconvenience.

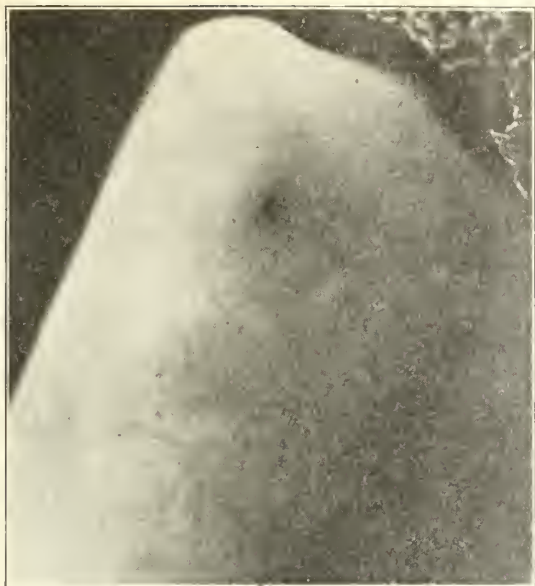


Fig. 2.

One man who had been vaccinated seventeen times by the scratch or incision methods gave a typical umbilicated pustule in four days after an intradermic injection.

It was observed several times that a second injection, as late as the tenth to twelfth day after the first injection seemed to light the first into activity closely followed by the reaction to the second injection and both would crust and the crusts fall off at the same time. Bryce noted in 1802 similar reaction in scratch vaccinations. (Fig. 3.)

I injected and got a typical umbilicated pus-

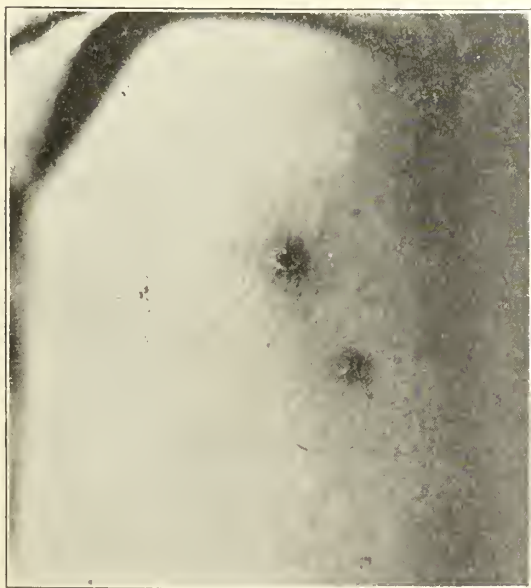


Fig. 3. Upper pustule is site of injection twelve days previous to lower.

tule on persons who had been repeatedly unsuccessfully vaccinated by scratch or incision methods yet only twice was I able to make an ordinary vaccination take where I had previously injected and these two people had only one trial by injection. (Fig. 4.)

Persons previously successfully vaccinated if susceptible to vaccine react quicker than the unvaccinated. I do not mean anaphylactic reactions but typical reaction as manifest by pustulation, umbilication and crust formation which progress more rapidly.

Anaphylactic Reactions.—A cutaneous reaction of anaphylactic nature may or may not occur in the injected area of the previously successfully vaccinated and in those who have had smallpox. This reaction starts in from a few to thirty-six hours and is manifest by



Fig. 4. Woman. Successful forty years previously. (Note scar.)

itching, redness and swelling. I did not observe any general reaction of a character that gave me any alarm.

It must be borne in mind that in previously vaccinated individuals unless one gets a typical reaction to vaccination such as an umbilicated pustule that a reaction that comes inside of thirty-six hours is probably not a take but an anaphylactic reaction.

I observed anaphylactic reactions occurring in thirty-six hours in individuals who after a lapse of 6 to 10 days developed a typical umbilicated pustule at the site of injection.

Immunity or vaccinoid reactions as described by Kolmer develop in those individuals who have more or less immunity. (Fig. 5.)

Complications and Sequelae.—There were no secondary infections observed in this series.

I treated, as a wound, by wrapping but two arms both of which had a ruptured vesicle. These arms were dressed once only.

Brawny induration of the arm or leg was not noted. Where swelling of the arm occurred absence of pain was a feature.

There was little or no complaint of pain.

Axillary gland swelling when present was remarkable by reason of the slight tenderness and absence of pain.

The size of the vesicle did not influence the amount of pain.

Five cases of vaccinia were observed. These were characterized by a generalized erythema multiforme eruption either papules or vesicles that unless scratched and secondarily infected dried up in two or three days.

In four cases, a vesicle, not umbilicated, developed on the site of injection three or four months after vaccination. Two cases oc-



Fig. 5.

curred on the same day in different individuals who had been injected on the same day. These vesicles were incised and the base treated with 15 per cent. silver nitrate solution. They did not require further treatment.

Scarring may be entirely absent. The usual scar is the size of the original wheal raised at the time of the primary injection.

Multiple vesiculation or pustulation around the original injection was not observed.

It is my observation that the vesicle of the intradermic vaccination is much less liable to rupture than the vesicle of the scratched or incision method. I believe this to be due to the fact that the usual vesicle is prone to rupture at the junction of the denuded area

and the vesicle wall extending beyond the denuded area. As in intradermic vaccination we do not have a denuded area of skin, the vesicle is less liable to rupture.

Technique.—Boil in water or physiologic salt solution a medicine glass, Luer, or better, a tuberculin syringe, a number of one-half inch, 25 gauge needles. Allow to cool before use. The individual capillary tubes of vaccine are immersed in ether for ten minutes and are wiped dry with sterile gauze, or allowed to dry on a sterile towel, and then the contents expressed aseptically into the sterile medicine glass, and water or salt solution added to make a dilution of one part vaccine to four parts of sterile distilled water or physiologic salt solution. This mixture is thoroughly mixed by drawing into and expressing from the syringe. It is then ready to use; but before each injection, and before the next injection, the syringe must be shaken, as the heavier particles of the vaccine have a tendency to settle out. It must be remembered that a needle must be used only once without boiling, as otherwise syphilis may be transmitted.

If only one or two injections are to be done, the vaccine may be dropped into the barrel of the syringe, and the plunger inserted, and sterile water drawn into the syringe, and the mixing done in the barrel of the syringe by shaking.

Cleanse with ether a spot one inch in diameter on the surface to be injected. Allow the ether to evaporate holding the skin taut, and holding the syringe, with needle attached, nearly parallel to the skin, push the needle between the layers of the skin until the beveled point is entirely covered with a layer or layers of the skin. The beveled point of the needle should be easily seen through the skin, and a white wheal raised as the injection progresses, if the needle is between the layers of the skin. I injected one-tenth c.c. of the vaccine mixture, and after injection massaged the resulting wheal slightly. I believe that this massage will insure more successful vaccinations than would result were it not done. After the injection the sleeve can be lowered immediately and the patient may leave.

Patients Were Instructed as Follows.—1. If you have been successfully vaccinated, or have had smallpox, return in 24 to 48 hours for inspection, and again in one week, and again in a week unless a pustule develops.

2. If you have not been successfully vaccinated, return for inspection when redness or a blister appears around the spot injected.

3. Return the twelfth day for re-vaccination if the arm does not take.

4. Do not wear shields, bandages or bunion

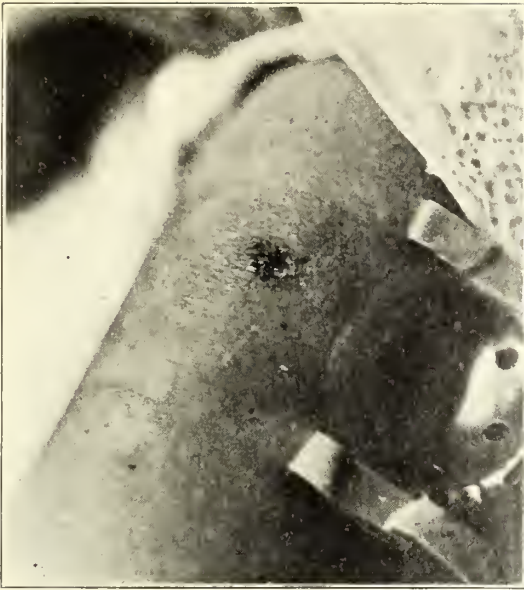


Fig. 6.

plasters, as these tend to keep the vaccination moist, and prevent drying. (Figs. 6, 6a.)

5. If the arm takes, or redness starts around the site of injection, pin loosely in the garment over the vaccination a large piece of freshly, thoroughly scorched silk, linen or muslin, so that the vaccination area is covered in any position in which you place the limb, or arm.

The advantage of this treatment is that the spot is not macerated as by a shield nor yet do the loose threads of gauze catch on the vesicle, and again the vesicle, should it break, is in contact with a relatively clean cloth.



Fig. 6a.

When vaccination is done by injection the time usually consumed by drying or wrapping of vaccinated area is an absolute gain of time. With the vaccine mixed I injected 56 negro children in 18 minutes and filled the syringes and changed needles myself.

Conclusions.—1. Intradermic vaccination is worthy of further study.

2. It would seem that intradermic vaccination is the method of choice where the individual is liable to rub off the vaccine or apply antiseptics to prevent vaccination from being a success.

3. That intradermic vaccination offers less opportunity for secondary infection.

4. It would seem advisable to try intradermic vaccination on those individuals who repeatedly fail to react to ordinary vaccination methods.

BIBLIOGRAPHY

- Wright, L. T.: Jour. A. M. A., Chicago, 1918, LXXI, 654.
 Leiner: Zeitschrift fuer Kinderheilkunde, Berlin, 30, 205.
 Kolmer, J. A.: Practical Text Book of Infect. and Immun., and Spec. Therapy, 1917, 678.
 Bryce: Inoculation of Cowpox, Edinburgh, 1802.

DISCUSSION

Dr. John Zahorsky, St. Louis: I want to say a few words in reference to Dr. Twyman's paper on vaccination. I think that is a very good method. I have used it just a few times. I think it will be gradually used more and more. It is more complicated and requires more technical skill, so I should not insist upon it.

I find so many physicians are still using the old-fashioned shield—apparently protecting the arm. They are harmful to the vaccination lesion and should be discarded. They allow the dirt which collects above them to infect the lesion. I think the method Dr. Twyman uses of protecting with sterile gauze tied inside the sleeve is the best method. It does not constrict or rub the arm.

As to the site of the vaccination, I think we should get away from that old idea of vaccinating the arm at the insertion of the deltoid. In boys it is all right. It will not do in the case of a girl. We have been using the back part of the shoulder in girls, being much less conspicuous and it does not mar the arm. If a scar should form there it can be hidden by a simple bow attached to the shoulder band. As to the vaccination on the leg or thigh, personally I have discouraged it, because nearly all the trouble I have seen in vaccination has been with vaccination on the leg. The young child with vaccination cannot keep it quiet. The limb being in constant motion works the vaccine into the tissue more than on the parts that can be kept more quiet.

If a secondary infection should enter the vaccination (in the leg or thigh) it would be forced into the tissues more quickly and produce severe ulceration and sepsis. So vaccinating the average child on the leg is a dangerous procedure, and I do not think we should recommend anything for a child which is dangerous.

The method of vaccinating in two or three small points is to be commended. It makes small lesions and does not disfigure at all. If to that we add the intracutaneous method I think we will get away from the bad scarring and some of the secondary infections.

Dr. A. W. Kampschmidt, Columbia: I have looked through the literature to see how much I could find on intradermic injections for smallpox and I could not find much. Last fall I used that method in one hundred and fifty cases. I had about the same experience as Dr. Twyman. While I have not statistics on what my vaccinations showed, I can vouch for what he said in regard to the results and reaction. My patients did not complain of the arms being sore. I did not have a single case of secondary infection.

At first I used my vaccine very dilute, about one to eight. Then I found my vaccinations were not taking very successfully, so I increased my dilution to fifty-fifty. After that I had 90 per cent. of successful takes.

I never use the shield. In young children where it was difficult to keep them from scratching, I took a piece of gauze and cut a hole the size of half a dollar and fastened it onto the arm.

SUGGESTION FOR MODIFICATION OF THE MEDICAL COURSE FROM THE STUDENT VIEWPOINT

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ST. LOUIS

In view of the fact that improvements in the medical curriculum are constantly being sought we have thought that some suggestions from the student's viewpoint might be of value. By such action we realize that we are probably rushing into a region no angel would care to frequent. However, at one time or another we have been connected with four different class A medical schools of the Middle West and any criticisms made do not apply entirely to any one particular school. Furthermore, we have also had the advantage of studying the problem in the capacity of student assistants, which experience may temper our judgment to some degree.

Under the present system the medical course consists of four years, with entrance requirements of a modified college course of at least two years' duration. The high school work preliminary to the pre-medical work is not regulated except as to general college requirements. We think that considerable improvement could be made even as early as the secondary schools. We note that Stagg¹ of Scotland advocates special modifications of general courses for those destined to become medical students at an age as early as 13 years, which would correspond in a general way to a special high school course in this country. Statistics¹⁴ compiled by the junior writer on grades at Washington University School of Medicine show that those medical students who have had four years of academic work preliminary to the medical course have an average of only 1.32 per cent. higher than those students with two years of pre-medical training, and they

are 1.35 years older at graduation. These figures are not far from what may be found to be the condition at other schools. Moreover, the men with four years of academic work are almost two years older than those without bachelor degrees when they graduate in medicine. The average age of graduation² is 26 plus, making the man in his 28th year when he finishes his intern year. He is then usually unable or unwilling to spend more time in a hospital for further training. The profession would be materially benefited if the age of graduation were lower so that more hospital work could be done by the average medical graduate before going into private practice. Councilman³ disagrees somewhat with this in that he thinks the work done for the winning of the bachelor's degree is well spent. He finds that the grades made by men in his classes at Harvard Medical School who entered with a bachelor's degree are better than the average man who entered without a degree. This is the usual finding, but the difference in grades is insignificant. He also finds that those men who had considerable science in their college work averaged considerably higher than those who did not have much science. Men from strictly ecclesiastical colleges were poorer students than the men without college degrees. It is not difficult to think of reasons why these last two points should be true, but it is a bit far-fetched when Councilman's statistics can be made to show that men whose names begin with letters in the first half of the alphabet are slightly better than those whose names begin with letters in the last half of the alphabet.

The best place for the medical student to begin to differentiate himself is in the secondary school. It is there that the fundamentals of chemistry, physics, and biology should be given. All too many of the students enter college with the classical high school course as a foundation so that the time in college has to be devoted to the very rudiments of general science, and when the student enters the medical school there is a considerable gap between the rudiments and the specialized scientific medical courses. There is, so to speak, no transition zone. Phillips⁴ believes that the two-year college requirement is desirable, but thinks that the foreign language and the biology requirements as they now stand are not necessary. It is one of our points that we wish to emphasize, that these two requirements are desirable and that they are inadequate as now presented to the student. Thus we would suggest a special scientific course in the high school which, after sufficient time for installation, would be required of all pre-medical students. Almost any high school graduate has most of this course, and those that lack some of these subjects might make up their de-

ficiency during the summer preceding entrance to medical school or during the following summer. The outline of the course follows:

Year I		Year III	
English	I	English	III
Latin	I	Physics	I
Mathematics	I	Mathematics	III
History	I	German	II
Year II		Year IV	
English	II	Chemistry	I
Latin	II	Zoology	I
Mathematics	II	German	III
German	I	Elective	

For the exceptional student able to carry five subjects satisfactorily we would suggest that they be admitted to the medical school after satisfactory completion of 15 units without the formality of graduation at high school or examinations now commonly offered in lieu thereof.

This amount of English should allow the student to become fairly proficient in spelling, rhetoric and composition and develop his taste for good literature. The history should be a special general course with the latter half devoted to American history. Its value would be to enable the student to place historical events referred to in writings and by speakers, and also raise his standards of citizenship. Many medical students get into medical school without ever having taken a course in American history. We think such a course would therefore be desirable. Two years of Latin as now given are more than enough for the modern medical student when the tendency is toward Anglicization and when the Latin given is for the most part useless. Latin is not needed for the mental discipline of the medical student, for he can acquire that in other and more practical subjects. A special course of medical Latin lasting one year would be much more worth while than the two years as now given. The future medical student would be just as wise professionally had he never laboriously translated a single dimension of the bridge that Caesar built and so ably described in his writings of Gallic wars, but the medical student would be more proficient in his prescription writing had he been allowed to study the proper kind of Latin for his uses. Latin might even be postponed until taken in the medical school where the proper course might better be given.

Three years of German allows that the basic principles of the language be acquired with an ability to use them while still in the high school, thus leaving the college time free for the study of medical German and French. We think the present day medical student has need for both languages. Three years of mathematics consisting of algebra I, plane geometry, advanced algebra, and trigonometry taken in the sequence named, are sufficient to allow the

student to understand college physics, and to make further college mathematics unnecessary. However, should the high school student care to take a fourth year of mathematics, it might be made up of solid geometry and spherical trigonometry. Best of all perhaps, the student while still in the high school receives the fundamental training in chemistry, physics and zoology. If the zoology is general and includes classification of animals up to the amphibia, then the college zoology will be able to proceed from that point without waste of time. There is no need to repeat insect zoology in college except in specialized courses. Chemistry and physics as now taught in the high schools are sufficient as introductory courses to the present-day pre-medical courses in these subjects.

This leads up to the most radical departure we would make from the present system. The medical course would be better if it were to include what is now known as the pre-medical course. This would make the medical course six years in length. The student would be put under the supervision of the medical faculty as soon as he leaves the high school. This would mean very little change in most medical schools. Those schools geographically separated from the rest of their respective institutions would of course have to provide departments for languages and physics. The department of anatomy could absorb the students taking zoology and comparative anatomy, and the department of biochemistry those taking inorganic, analytical and organic chemistry. This department could then see to it that the students received the proper amount of physical chemistry in order efficiently to take up the courses in biochemistry. By proper utilization of classrooms and laboratories most schools could get along without additional expansion.

We do not agree with Elkin⁵ that a four-year academic course is essential or in all respects desirable, as the time consumed is not offset by the culture gained. Bevan² states that in his opinion the four-year college course before medicine is purposeless; "is an anomaly and a menace to national efficiency, and that it definitely should be done away with and its place taken by a specific preliminary two years course." This is approximately the consensus of opinion of students with whom we have talked. Some of our greatest scientists have taken to their specialty early and followed it religiously, seemingly not hampered by the lack of formal academic training. Whether or not a man is to become a celebrated scientist depends more upon the man than upon his collegiate environment.

The first thing to be accomplished would be the training of all pre-medical students in the

same manner, thus starting them off in medicine on an equal footing. Kirkland⁶ tells of instances of college graduates not being able to enter medical school because of a failure to have one or two entrance requirement courses. By the system proposed such an unfortunate situation could never happen as the man could enter medical school directly from high school and receive such advanced standing as he deserved. A college graduate intending to enter medicine while going through college sees to it that his pre-medical requirements are taken and thus avoids this difficulty. The student who is undecided during the first two years of his college course usually has this same difficulty. Establishing a six-year curriculum would not multiply the difficulties of these students, for they could be admitted to the medical school up to the grade their college work would give them by advanced standing, keeping in mind the fact that the laws of the various states have certain minimum residence requirements in the medical school before they will grant a license. Many medical students now entering school are unable to keep up their work, not because of a lack of ability but because of a lack of good early training. The smaller and more poorly equipped colleges of the country give a pre-medical course which often only brings the student on a level with those who complete the scientific course outlined above for the high school. They have had little or no embryology, cytology or comparative anatomy, no scientific German or French, and their biology may be botany or only lower animal forms. Very frequently their training in observation and accuracy has been neglected. We have seen these students start at the foot of the first year medical class and work up near the top by the end of the year. How much more they might have learned had they been well trained at the beginning of the year!

Then, again, the faculty would have a chance for early elimination of the poorest students in order that they might enter some other profession for which they are perhaps better fitted. This would be financially a great relief to both the school and the students who are ultimately eliminated from the medical schools.

The cost of such a pre-medical course to the student should be little, if any, more than the cost in a poorly equipped college, and the advantages would more than balance any monetary difference. The student would also be working in a medical atmosphere all the time and pick up knowledge on the side without being aware of it. We do not believe the student during the first two years of the present curriculum is harmfully distracted from his work by having an opportunity to see clinical cases.

We would propose the following curriculum for the first two years of the six-year curriculum. We would also recommend that a bachelor's degree in science be given at the end of four years.

Year I.			
Semester I.		Semester II.	
Physics	.....5 hours	Physics	.....3 hours
General Chemistry	.....5 hours	Zoology and Comp.	.....3 hours
English	.....4 hours	Anat.	.....8 hours
Hist. of Med.	.....2 hours	Chem. (Qual. Anal.)	.....3 hours
		English	.....2 hours
Year II.			
Semester I.		Semester II.	
French	.....5 hours	French	.....5 hours
Org. Chem.	.....5 hours	Exp. Psychol. or	.....3 hours
Chem. (Quant. Anal.)	.....3 hours	Parasitology	.....3 hours
Cytology	.....3 hours	Embryology	.....3 hours
		Med. German	.....5 hours

The English course should be on rhetoric and composition and consist of themes written on scientific topics in order that the student may learn to prepare a paper with correct spelling, punctuation, scientific diction and phraseology, which ability is now decried as being woefully lacking in medical students. The course in physics should have special emphasis on optics and the theory of the X-ray and radioactivity. We say this because these subjects are of special interest to the medical students and they cannot be emphasized without being preceded by a good foundation in general physics. Zoology should begin with the amphibia and go on into comparative anatomy. There would be no need for two separate courses in the proposed curriculum as they are now given as pre-medical courses, if the student has high school zoology. The short course in the history of medicine should be given by the departments concerned and would give the student a good historical background for the study he is about to undertake and familiarize him with the names of men famous in medicine.

In the second year he again would take up languages, French and German. The first semester would put him through the French grammar while the second would be devoted to the acquisition of a medical vocabulary and the reading of current literature. The second semester course in German has as its purpose a review of the high school fundamentals and also the learning of a medical vocabulary with collateral reading. Therefore, the student should be able to read both medical German and French during the first year of his real medical curriculum.

The organic chemistry should deal as much as possible with organic compounds of medical value. Cytology should teach general cellular characteristics and include the germ cytogenesis so that this subject need only be reviewed in embryology. The course in embry-

ology should begin with the chick and end with the pig, as most courses now do. This would allow a good understanding of human embryology as taken up in courses of histology and obstetrics. The choice of experimental psychology or parasitology is given as either is of value, the former to all medical students and the latter particularly to students interested in public health or general medicine. In view of the fact that poorly equipped colleges will exist, and that pre-medical students will attend them, the above combination seems to be the only solution for better preparation.

With regard to the present medical curriculum our suggestions are few and offered with a knowledge that we can offer little additional argument in upholding them. However, it is maintained that as students it seems that these points are worth mentioning. In the work of the first year there is a tendency to increase the laboratory courses in biochemistry too much. Experiments such as those on solubility of fats might well be done in the course of organic chemistry and there is no real need for their repetition here. Preparation and purification of such substances as amino-acids, cerebroside, globulins, and what not, involves too much time for the value received, except possibly for use in passing examining boards where questions are usually more or less irrelevant to practical knowledge of biochemistry. We have in mind the physiological chemistry examination given by the National Board of Medical Examiners, February 16, 1922, where three out of ten questions offered were on nucleins. So far as nucleins are concerned the questions were fair enough, but so far as concerns the practitioner not interested with research in metabolism the questions were not germane to his interests. A course of surgical or applied anatomy throughout the last three years of the medical course might well be given as a transition course between anatomy and surgery. We notice with considerable interest that a four-year "co-ordinating course" is to be installed in this school by Dean Allison.⁷ During the second year prescription writing should be emphasized in connection with pharmacology and therapeutics. In the third year during the recitation courses would be a wonderful opportunity for the introduction of therapeutics of each disease studied. The theory of the therapy should be discussed, not mere arbitrary statements made. During the last two years there should be some opportunity toward specialization to be made by cutting down the courses of ophthalmology, otology, and rhino-laryngology to a combined clinic and lecture course each, giving the time thus saved as elective for the student to do extra work in any branch he desires. The course in neuropathology should be made

semi-clinical with lectures on the signs useful in localization of lesions which are not well grasped in any other course unless it be elective. Gross pathology and the gross normal structure of organs are neglected for the microscopic consideration, but this is already being remedied in some schools.

Much can be said about medical pedagogy as now practiced in the medical schools, but other writers have previously taken up the points we would discuss. We make reference to them because their ideas conform to ours. Hyslop,⁸ a recent graduate, suggests that a better linking-up of the various medical courses be brought about. Too little attention is paid to the practical usage of facts gained during the first two years of the medical course; for this reason many of them are promptly forgotten by the student. In this we can heartily agree. Jackson⁹ estimates that due to inefficient teaching methods losses in medical education may be conservatively estimated at twenty to twenty-five per cent., and advises that wherever possible medical teachers should concern themselves with at least the fundamentals of the principles of pedagogy. Recently a professor, taking up the complaint of another, spoke to his class of seniors to the effect that he felt that his interest and duty toward them demanded insistence for better attendance, which he proposed to bring about by reporting the absentees to the Registrar. This sort of coercion will no doubt be effective, but not nearly so effective as excellent presentations of clinics on his part. Students do not have to be driven to the good teacher, and in this particular instance most of the absentees had attended the clinic of another man with whose superior presentation of cases they already were acquainted.

Robinson,¹⁰ formerly dean of this medical school, makes a plea for a better correlation of the medical subjects taught. It is gratifying to us as students that a member of the faculty will take an unsolicited interest in the needs and viewpoint of the student. Reilly¹¹ believes that the students interest in medicine and therapeutics should be stimulated to some degree by seeing and looking after some clinical cases from the second year until graduation. Allison's¹² views on the teaching of orthopedic surgery should be taken to heart by teachers of other specialties. He believes that because of the fact that such a subject as orthopedic surgery is more or less an exclusive specialty, it does not follow that it should be taught as an exclusive specialty. The student should not be burdened with cases of special branches that are very rare or require specialized training and skill to handle, for when the student becomes a general practitioner neither he nor anybody else expects him

to be able to handle but only to recognize and refer such cases. If he is able to handle such difficult cases successfully he no longer is a general practitioner but a specialist who has had more than the usual amount of training in that particular branch. No student can master all medicine in four years that no practitioner or teacher can master in a lifetime. However, such cases should not be neglected. Walker's¹³ rather acrimonious assertion that there is too much dogma and detail in the teaching of the clinical years of the curriculum is in our opinion correct, but we have never observed this condition to be present to the degree he describes.

These suggestions for the improvement of the medical curriculum are not aimed at any particular medical school, but are offered as a result of our limited experience as students in medical schools and what we have learned from students from other medical schools. We believe that many of these suggestions could be put into practice by most medical schools with considerable benefit to the student. Our aim is to increase the efficiency of the system of medical education of this country and we hope our suggestions may be taken as constructive criticisms from the viewpoint of the student who is still within the sphere of the student's activity.

Kingshighway and Euclid.

BIBLIOGRAPHY

1. Stagg, C.: The School Curriculum of Boys Who Intend to Become Medical Students. *Edinburgh Med. J.*, XXI, 169, 1918.
2. Bevan, A.D.: A Constructive Program. *J. A. M. A.*, LXXVIII, 735, 1922.
3. Councilman, W. T.: Experiences of a Medical Teacher. *Boston Med. & Surg. J.*, CLXVI, 1912.
4. Phillips, W. F. R.: The Preliminary Educational Preparation for the Study of Medicine. *South. Med. J.*, XI, 324, 1918.
5. Elkin, D. C.: The Viewpoint of the Fourth Year Student. *South. Med. J.*, XIII, 766, 1920.
6. Kirkland, J. H.: Secondary and College Education in the South in Relation to Medical Education. *South. Med. J.*, X, 526, 1917.
7. Allison, N.: Discussion on "New Curriculum." *J. A. M. A.*, LXXVIII, 739, 1922.
8. Hyslop, G. H.: The Medical Student's Problem. *N. Y. Med. J.*, CXIII, 336, 1921.
9. Jackson, C. M.: On the Improvement of Medical Teaching. *Science*, N. S., XXXV, 566, 1912.
10. Robinson, G. C.: The Medical Curriculum. *South. Med. J.*, XIV, 57, 1921.
11. Reilly, T. F.: The Teaching of Medicine and Therapeutics to Undergraduate Students. *Med. Rec.*, C, 447, 1921.
12. Allison, N.: The Teaching of Orthopedic Surgery. *J. of Orthoped. Surg.*, III, 448, 1921.
13. Walker, R. C.: A Student's Point of View. *J. A. M. A.*, LXXVIII, 1743, 1922.
14. Weymann, M. F.: An Analysis of Student Grades at Washington University School of Medicine. *Science*, LV, No. 1435, 1922.

SANATORIUM CARE OF TUBERCULOUS SOLDIERS BY THE FEDERAL GOVERNMENT.—George Thomas Palmer, Springfield, Ill., and Henry W. Hoagland, La Jolla, Calif. (*Journal A. M. A.*, Aug. 13, 1921), discuss the tuberculosis problem which has arisen from the war and which the federal government is trying to solve. They report on the results of an inspection of tuberculosis sanatoriums and the work being done

and point out the needs of this service. One of the most serious obstacles in the operation of government sanatoriums is the scarcity of physicians and nurses specially trained in tuberculosis. Theoretically, many of the government sanatoriums are too large to attain the maximum of service for the individual patient. On account of the shortage of medical personnel, it has been found impossible to secure entirely satisfactory commanding officers and chiefs of medical service for all of the existing institutions. The most serious fault in these government sanatoriums, and one which will be overcome only with the greatest difficulty, if at all, is the flagrant lack of discipline to be observed in practically all of the institutions. The patients apparently fail to recognize that reasonable discipline is an essential part of the treatment of tuberculosis, and seem to regard all disciplinary efforts as an arbitrary and offensive use of authority. It was the opinion of each member of the inspecting committee that the men are being distinctly harmed by the possession of an excessive amount of money derived from federal compensation, and it was recommended that some legislative action be taken by Congress whereby compensation funds may be turned over to the members of the soldiers' families or accumulated with interest until the soldier is discharged from the sanatorium. So long as these restive and restless patients feel that their insubordination and hurtful indiscretions are condoned, and so long as the authority of the institutional heads is overridden by powerful political influence, government sanatoriums will fail to measure up to any sort of high standards and will fail to compare favorably with well conducted private institutions. If every physician and every nurse connected with the government sanatoriums is required to become proficient through special training and instruction, there will ultimately be available a large group of physicians and nurses who will find ready employment and who will be exceedingly valuable in the many county and municipal sanatoriums which are being established in all parts of the country.

CERTAIN ASPECTS OF POSTDIPHTHERITIC DIAPHRAGMATIC PARALYSIS.—A report is made by Harold R. Mixsell and Emanuel Giddings, New York (*Journal A. M. A.*, Aug. 20, 1921), of eight fatal cases of postdiphtheritic diaphragmatic paralysis in 4,259 cases of diphtheria. The cases enumerated show extensive initial exudate covering both tonsils, the uvula, and the soft palate, and a nasal discharge; and in all but one case (of which the exact facts are unknown) antitoxin was not given until after the third day of the disease. The average time of onset of paralysis was thirty-nine and a half days. The duration of paralysis averaged thirty-six hours. The prognosis is 100 per cent. fatal. Of the eight patients, six were girls, two were boys. As regards treatment, on account of the development of the paralysis due to the late administration of antitoxin, the authors emphasize the importance of absolute rest for the patient for a period of at least six weeks, for the purpose of possibly obviating paralysis. In these two series of cases, no treatment was found effectual. Artificial respiration at the present time is the only form of treatment which offers any hope for recovery.

CARCINOMA OF THE SPLEEN.—Carcinoma of the spleen, secondary to cancer of the breast, and part of a general microscopic carcinomatosis was present in the case reported by S. W. Sappington, Philadelphia (*Journal A. M. A.*, April 1, 1922). In this case massage was probably an etiologic factor, an evidence of the danger of tumor manipulation.

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Missouri State Medical Association

AUGUST, 1922.

EDITORIALS

REFERENDUM ON MEDICAL COLLEGE BILL DENIED

By the narrow margin of four signatures the referendum on Senate Bill No. 433—the Medical College Bill—has been defeated. On July 18 the Supreme Court sustained a ruling of the Circuit Court of Cole County that the petitions on the Medical College Bill from the Fourth Congressional District did not contain enough signatures to comply with the law. The failure in this district invalidated the petitions from all the other districts because they did not represent two-thirds of the congressional districts.

It will be recalled that the petitions from the Fourth Congressional District, which includes St. Joseph, when filed contained, it was thought, several hundred signatures more than the required number. But when the count was made by the secretary of state it was discovered that there were only 32 more signatures than the number needed. This situation was of course a very inviting occurrence for the advocates of the low grade medical colleges to institute mandamus proceedings against the secretary of state to prevent him from placing the bill on the ballot. Such proceedings were instituted, and for two months the cause has been pending in the courts. The report of the referee declared that there were several hundred names placed on the petitions illegally. Our attorney, Mr. A. T. Dumm, of Jefferson City, resisted this contention although compelled to concede twenty names not legally signed to the petition—nineteen duplicate signatures and one minor. This left a margin of twelve names which our attorney argued should remain on the petition. How nearly he succeeded is evidenced by the small number (sixteen) which the Supreme Court found should be stricken from the record.

The law, which now becomes effective, removes the word "reputable" from the statute and requires the board of examiners to recognize the graduates of any medical college of four years' requirements. It also permits anyone whom the board refuses to license to appeal to the circuit court, and the circuit court is empowered to rule on the question of what

shall constitute a medical school of good standing.

Through the failure of the referendum the bars against incompetents in medicine have been knocked down and spitefully kicked into space. The fence that has withstood the assaults of selfish interests for twenty years has been demolished. The state is now wide open for the inrush of graduates of all low-grade and commercial medical schools in the country, and the way is open for the rapid growth of so-called medical schools in any part of the state.

This lowering of the standard of medical education in Missouri will undoubtedly affect our reciprocal relations with other states, and we need not be surprised if reciprocity is withdrawn by some states, just as it is now being withdrawn from Illinois, where the scandal in selling registration certificates is still unsettled. Our prospect is not an alluring one, but the damage is not irreparable. Other fences have been destroyed and new ones erected; better ones than those that were torn down. We can begin at once upon the construction of the new fence, and it should be made of steel wire and steel posts and then charged with electric voltage sufficient to knock the ambition out of all who tamper with it.

A. R. McCOMAS, M.D.

PRESIDENT, 1922-1923

Dr. Arthur R. McComas, of Sturgeon, elected by the House of Delegates to be the head of the profession during the year, May, 1922-1923, has been so intimately identified with the activities of the organization during the thirty-two years of his professional life that he is known to nearly every member of the Association. Ever faithful to the principles upon which our profession and our Association are foundationed, he has unselfishly sacrificed his own interests whenever adversity threatened the welfare of the organization or of the profession and through his efforts our forces have been augmented in the legislative halls of the state, and as a practitioner of medicine he has won an enviable reputation that extends far beyond the confines of his own county. The burden of directing the affairs of the organization and protecting the interests of the profession of medicine has been placed in competent hands.

Dr. McComas has served our Association in many capacities and was elected Councilor of the 9th District in 1908 holding this office until his election to the presidency. After the death of Dr. Lutz in 1916, Dr. McComas was appointed Chairman of the Council by Dr. Woodson and was re-elected to that office an-

nually thereafter. He was an early volunteer in the Medical Corps of the Army during the World War. He was commissioned a captain and served in the Post Hospital at Fort Leavenworth.

Dr. McComas is a native Missourian, born in Sturgeon, August 4, 1868, the son of a physician, a pioneer in Central Missouri. His literary education was obtained at the State University where he made his course harmonize with his plan to study medicine and was graduated from the University in 1888. He then entered the Beaumont Hospital Medical College in St. Louis, receiving his degree in 1890, returning to Sturgeon to practice in conjunction with his father. The latter's health became impaired after an attack of grippé-pneumonia which compelled him to seek a milder climate and he moved to Oklahoma where he remained until his death several years ago. Dr. McComas' mother, still living, is the daughter of a pioneer of Boone County, John Rocheford, who was a prominent figure in the development of the county, especially in the building of the old North Missouri Railroad, now part of the Wabash System.

MEDICAL CARE FOR DISABLED VETERANS

In the editorial column of the last issue of the JOURNAL, attention was called to the work of the United States Veterans' Bureau, and it was pointed out that fundamentally this work was of a medical character and therefore should be of primary interest to the medical profession. The Ninth District of the U. S. Veterans' Bureau includes the states of Missouri, Iowa, Kansas and Nebraska, the headquarters of the District being located at 6801 Delmar Blvd., St. Louis, Mo. Although the conduction of this work requires a very large organization, certain phases of the work can be considered separately for the purpose of clearness. It should be understood that the federal organization, the U. S. Veterans' Bureau, cannot accomplish to the highest degree its purpose of maintaining the welfare of the disabled veteran without the full co-operation of other agencies interested in similar purposes. Such co-operation is being freely given and there has been, as an example of this, recently organized a District Rehabilitation Committee acting with the National Rehabilitation Committee of the American Legion, and this committee is now investigating the facilities for and conduct of rehabilitation work in the Ninth District of the U. S. Veterans' Bureau. The committee members and their respective fields of inquiry are: Dr. Fred W. Bailey, General Medical and Surgical; Dr. H. Unterberg, Neuro-

psychiatric; Dr. E. L. Opie, Tuberculosis; Prof. J. L. Van Ornum (Washington University), Vocational Training Interests and G. H. W. Rauschkolb, Compensation and Insurance. General members of the committee are: Dan F. Steck, Iowa; Wilber S. Metcalf, Kansas; Clinton Brome, Nebraska, and Dr. H. F. Parker, Missouri. The chairman is H. D. McBride, of St. Louis, and Robert Burkham, St. Louis, is vice chairman.

At the present time we have available the preliminary report of the committee, which aims to render an exact and comprehensive report of the conditions existing in the Ninth District regarding the medical treatment afforded veterans and the facilities available for hospitalization and clinic treatment.

The committee finds that there is at present but one government owned hospital in the Ninth District, that being the U. S. Veterans' Hospital No. 57 at Knoxville, Iowa, which has a capacity of 170 beds and is used wholly for the care of veterans with psychoses. This institution was formerly a state inebriate asylum.

There are four hospitals which are leased outright by the government, as follows: U. S. Veterans' Hospital No. 35, at St. Louis. This was formerly an almshouse and the building and facilities are declared by the committee to be inadequate for the proper medical treatment of any type of case. Its capacity is 650 beds and all types of cases are at present housed in it, including medical, surgical, tuberculosis and neuropsychiatric. U. S. Veterans' Hospital No. 67, at Kansas City, Mo. This was formerly a general hospital with capacity of 130 beds and has good facilities for medical and surgical cases and for the observation of suspected tuberculosis. U. S. Veterans' Hospital No. 75, at Colfax, Iowa. This was formerly a resort hotel with capacity of 200 beds. Facilities are only fair for medical and surgical cases. The building is a fire trap and the facilities are not in line with the requirements of modern ideas of hospital treatment. The National Military Home, Kansas, as the name indicates, is a home for aged, disabled volunteer soldiers, but arrangement has been made for 200 beds for the use of the U. S. Veterans' Bureau. The medical facilities and personnel at this institution do not warrant the hospitalization of patients in need of active medical treatment.

All other hospital facilities are provided by contract with existing institutions, the government turning its disabled veteran patients over to the regular personnel of these institutions, with no direct supervision of the patients. The following are a few of the hospitals now under contract with the government in the Ninth District:



CAT.

ARTHUR R. McCOMAS, M.D.
President Missouri State Medical Association
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For general medical and surgical purposes there are the Iowa Lutheran Hospital, Des Moines, Iowa; the Mercy Hospital, Iowa City, Iowa; Wesley Hospital, Wichita, Kansas; Lincoln Sanatorium, Lincoln, Neb.; Swedish Hospital, Omaha, Neb. For tuberculosis cases there are the State Sanatorium, Oakdale, Iowa; State Sanatorium, Norton, Kansas; Jasper County Hospital, Webb City, Mo.; Mt. St. Rose Sanatorium, St. Louis, Mo.; State Sanatorium, Mt. Vernon, Mo. For neuropsychiatric cases there are the Cherokee State Hospital, Cherokee, Iowa; Independence State Hospital, Independence, Iowa; Topeka State Hospital, Topeka, Kansas; Puntun Sanatorium, Kansas City, Mo.; State Hospital No. 1, Fulton, Mo.; State Hospital No. 2, St. Joseph, Mo.; State Hospital No. 3, Nevada, Mo.; State Hospital No. 4, Farmington, Mo.; St. Louis City Sanatorium, St. Louis, Mo.; Lincoln State Hospital, Lincoln, Neb.; Stillhildreth Sanatorium, Macon, Mo.

The committee finds that the total bed capacity for the Ninth District may be divided as follows: Government owned, 172; government leased, 1,176; contract, 319.

Later reports to be issued on the work of this committee will concern the adequacy of the facilities mentioned and will make recommendations for changes which seem advisable. Such recommendations will be referred to the National Rehabilitation Committee of the American Legion and to the manager of the Ninth District U. S. Veterans' Bureau for action.

THE CONSTITUTIONAL CONVENTION

The constitutional convention has been in session since May 15 and many proposals have been offered and referred to committees. As yet the convention has not adopted any of the proposals, but when committees begin reporting to the general body, which will be soon, the task of adopting or rejecting proposals will commence. Among the proposals are three which affect the public health and the welfare of licensed physicians.

PROPOSAL NO. 192

Section 58. The General Assembly shall provide means for the safeguarding and promotion of the public health and welfare.

This is an excellent provision because it establishes the principle that the protection of the health and the general welfare of the people is a proper function of the state. We do not believe that the state under this clause could establish a system of "state medicine." The American Medical Association at the St.

Louis session defined state medicine as follows: "State medicine is any form of medical treatment provided, conducted, controlled or subsidized by the federal or any state government or municipality, excepting such service as is provided by the Army, Navy or Public Health Service and that which is necessary for the control of communicable diseases, the treatment of mental disease, the treatment of the indigent sick, and such other services as may be approved by and administered under the direction of or by a local county medical society, and are not disapproved by the state medical society of which it is a component part." This proposal should be adopted. Letters favoring its adoption should be addressed to Mrs. Walter McNabb Miller, Chairman, Committee on Health and Public Welfare, Constitutional Convention, Jefferson City.

PROPOSAL NO. 253

Introduced by Mrs. Morrow (by request).

Amend Section 4, Article 2, of the Constitution Bill of Rights.

That all constitutional government is intended to promote the general welfare of the people; that all persons have a natural right to life, liberty and the enjoyment of the gains of their own industry, including the right to administer to the sick for compensation; that to give security to these things is the principal office of government and that when government does not confer this security it fails of its general design.

Proposal No. 253 is a vicious measure. It amends the present Bill of Rights by adding the words: "Including the right to administer to the sick for compensation." If this amendment should be adopted anyone could practice medicine and charge for his service in administering to the sick. It should be defeated.

PROPOSAL NO. 254

Introduced by Dr. Alonzo Tubbs.

Bill of Rights.

In any provision that may be made by the General Assembly of this state for the conservation of the public health no authority shall be conferred upon any board of health or other conservators of the public health to compel any person or persons to submit to any kind of medical treatment for the prevention or cure of any disease against his or her will, nor shall the General Assembly pass any law that will discriminate in favor of or against any recognized system of healing in the treatment of the afflicted.

Proposal No. 254 would make it impossible for the state board of health and all local boards and county health officers to enforce quarantine or administer any preventive remedy to a very large proportion of the people.

There is nothing of this nature in our present Bill of Rights. This proposal should not be allowed to become a part of our constitution. Letters protesting against the adoption of proposals No. 253 and No. 254 may be addressed to Col. M. E. Benton, Chairman, Committee on Bill of Rights, Constitutional Convention, Jefferson City.

THE NEW HOSPITAL AT EXCELSIOR SPRINGS

Standing majestically on the eastern brow of beautiful Beacon Hill, Excelsior Springs points with pride to her new Government Hospital. The scheme for this wonderful building was conceived in the minds of some of the public-spirited citizens of the "Springs" several years ago. These men got in touch with "Uncle Sam" and the reward of their zeal is at least within near view. Your Uncle moves slowly but surely. This building at its present stage represents an outlay of a trifle less than half a million dollars, with first-class accommodation for about 250 of America's disabled war-boys. The service intended is for men who are convalescing from wounds of whatever nature contracted in the service of the United States, not for any specified class of diseases.

The hospital is not yet open for business though practically completed. Crates of hospital furniture in "knock-down" are stored on the large verandas and in rooms, ready for setting up. When in operation there will be no more capable nor enjoyable place for our boys than this. The purest and sweetest of air, abundance of life-giving sunshine, the songs of native wood-birds, and an equable climate the year around—all make it one of the most delightful spots in our country.

Added to the above advantages, the famous mineral waters come in for their share of the glory. For years they have been lending aid to the "down-and-outers," physiologically speaking, of every state in the Union, and even to many from foreign lands. Excelsior Springs waters are becoming known throughout the civilized world, and Uncle Sam is making no mistake in the selection of the site for his sanatorium. It is to be hoped that the final arrangements will soon be made and the benefits will begin to be felt by those so richly deserving of America's gratitude.

NEWS NOTES

DR. M. G. SEELIG, of St. Louis, was a guest of the Southern Minnesota Medical Association at the meeting held in Rochester, June 19, and by invitation read a paper on cholecystitis.

DR. EMMET P. NORTH, of St. Louis, whose term as a member of the State Board of Health expired July 1, has been reappointed a member of the board by the governor. The term is for a period of four years.

THROUGH the efforts of the members of Livingston County Medical Society petitions have been filed with the county court requesting the court to authorize the submission of a bond issue for a county hospital at Chilli-cothe. The question will be voted on at the next general election.

DR. G. CANBY ROBINSON, former dean^a of Washington University Medical School, now acting professor of medicine at Johns Hopkins University during the current year, will spend the summer in study at the University of Copenhagen before assuming his duties as professor of medicine at Vanderbilt University.

THE College of Homeopathic Medicine in Ohio State University will merge with the regular school of medicine of the Ohio State University. Elective courses will be permitted in Homeopathic materia medica and therapeutics. The merger marks the passing of the last Homeopathic medical school in Ohio and leaves only three Homeopathic colleges in the United States.

DR. W. W. GRAVES, President of the St. Louis Medical Society, has appointed a committee on medical progress whose duties are to make a survey of the eleemosynary institutions of St. Louis for the purpose of ascertaining the conditions under which physicians serve these hospitals and especially what salaries are paid to the physicians. The personnel of the committee is: Dr. R. S. Vitt, Chairman; Dr. W. D. Aufderheide, Dr. M. A. Bliss and Dr. D. C. Todd.

DR. E. A. WOOD, of Sedalia, has retired from practice and moved to Hemet, California, where his principal occupation will be the cultivation of oranges and olives on a ranch that he has acquired. Dr. Wood has practiced in Sedalia for the past twenty-seven years. He founded and organized the Maywood Hospital which was in successful operation for a number of years and was sold to the Sisters of Charity in 1915 when the name was changed to St. Mary's Hospital. The Pettis County Medical Society tendered a farewell dinner in honor of Dr. Wood on July 6. Dr. Wood's office equipment and records have been ac-

quired by Dr. A. L. Walther, his associate during the past few years.

MR. NELSON CUNLIFF, Director of Public Welfare, St. Louis, has arranged for a gathering of all the employees of the various institutions under his control to meet at a picnic in Forest Park on Saturday, September 2. There are more than 2,000 employees in the department and the director hopes by this sort of gathering to bring about a fuller understanding of the work of the various institutions and better co-operation among the employees. The Public Welfare branch of the city government includes Koch Hospital, City Hospital, City Hospital No. 2 (for negroes), City Sanitarium, Isolation Hospital, Board of Health, Bureau of Vital Statistics and the parks and playgrounds.

THE Academy of Medicine of Kansas City has voted to establish a Clinical Week during the month of October every year. The clinics this year will be held on October 3, 4, 5 and 6. On the evening of October 3, there will be a smoker and get-together session and a banquet will be held on the evening of October 4, at which time a guest of national reputation will be invited to address the meeting. The evening of October 5 will be reserved for a scientific program.

The week of October 3 to 7 is a gala period for Kansas City when the Priest of Pallas pays his annual visit. The festivities of that occasion will not interfere with the clinical work because these sessions will be held in the forenoon when there is no public entertainment connected with the Priest of Pallas.

UNIVERSAL regret was the feeling among all lovers of the State University when the acting president of the University, Professor John C. Jones, submitted his resignation to the Board of Curators recently. The Board reluctantly received the resignation but prevailed upon President Jones to defer it and continue serving as president until next April. President Jones has been connected with the University for forty years and served as acting president on a previous occasion, 1905-1906. He has been Dean of the College of Arts and Sciences since 1900 and has received degrees from many institutions, among them the Johns Hopkins, the University of Leipzig and the University of Munich. Universally esteemed for his great learning and beloved for his earnest interest in the welfare of student and teacher alike, President Jones has won the loyal support of everyone who is interested in the welfare of the State University.

THE American Medical Association has established a bureau of legal medicine and legislation in accordance with resolutions adopted by the House of Delegates of the A. M. A. at the St. Louis session. Dr. Wm. C. Woodward, formerly Health Commissioner of the District of Columbia and later of Boston, has been appointed executive secretary of the bureau. The functions of the bureau are: (1) To keep in touch with federal and state legislation relating to medicine and public health; (2) promptly and intelligently to advise interested state associations and component societies concerning medical legislation and, so far as practicable, to co-operate with them in such proper action as they may take; (3) to study the circumstances under which threatened actions for malpractice arise, with a view to devising methods, if possible, of reducing the frequency of such actions; of rendering defense—or compromise, if that be indicated—more equitable and effective, and of procuring relief and redress in actions inaugurated and carried on without probable cause; (4) to study and advise generally with respect to legal and legislative matters of concern to the science of medicine and to the medical profession.

OBITUARY

CHARLES A. SMITH, M.D.

Dr. Charles A. Smith, a graduate of the St. Louis College of Physicians and Surgeons, 1899, died suddenly at his home in Osceola, June 8, 1922, aged forty-eight years.

Dr. Smith was born near Montrose, Mo., May 5, 1874. He attended the State University and after his graduation from medical college began practicing medicine in Vernon County. From there he went to North Missouri where he practiced several years before locating in Osceola about eleven years ago. In 1917 he enlisted in the Medical Corps of the Army in the World War serving at Fort Riley and was later called to a Texas Cantonment where he was mustered out. He was a member of the Henry County Medical Society and the Missouri State Medical Association, and a Fellow of the American Medical Association. He is survived by his wife, two children and five brothers. His loss will be keenly felt by the medical profession and the community in which he lived.

Funeral services were conducted from the Presbyterian Church after which the Masonic fraternity, of which Dr. Smith was an honored member, took charge of the ceremonies.

CORRESPONDENCE

NO DISCRIMINATION

To the Editor:

The American Medical Association of Vienna wishes to have you announce through the columns of your JOURNAL, the restoration of friendly understandings between their organization and the teaching-body of the University of Vienna.

A Special Committee, elected by the Association, after a thorough investigation of the charges of discrimination against Americans, which were reported by members of our Association and published in our recent memorandum, find that the men who made the accusations of discrimination were either unable or unwilling to substantiate these charges under oath. Further, the courses in question were not so-called book courses and consequently were not under the control of the A. M. A. of Vienna.

It is the sentiment of this Association, that the men of the teaching body of the University of Vienna have suffered by this unjust criticism.

We further wish to state, that through the efforts of our Special Committee, working with a like committee from the teaching-body, sufficient numbers of book courses in English in all branches may be had at prices of from \$3.00 to \$5.00 per hour for the group taking such courses.

We are very glad to announce this return of friendly relations between the teaching body and our Association and hope that this communication will be given the same publicity as was given our former memorandum.

JOHN J. GELZ,
B. KAUFMAN,
WM. WILSON.

MISCELLANY

Constitution and By-Laws

of the

Missouri State Medical Association

CONSTITUTION

ARTICLE I.—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Missouri State Medical Association.

ARTICLE II.—PURPOSES OF THE ASSOCIATION

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Missouri, and to unite with similar Associations in other States to form the American Medical Association, with a

view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION

SECTION 1. This Association shall consist of Members, Delegates and Guests.

SEC. 2. MEMBERS. The Members of this Association shall be such of the members of the component county medical societies as shall be approved by this Association.

SEC. 3. DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

SEC. 4. GUESTS. Any distinguished physician not a resident of this State may become a guest during any Annual Session, upon invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

ARTICLE V.—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, and (2) *ex-officio*, the officers of the Association as defined in this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS

SECTION 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS

SECTION 1. The officers of this Association shall be a President, five Vice Presidents, a Secretary, a Treasurer, and twenty-nine Councilors more or less, as shall be determined by the House of Delegates from time to time.

SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary and the Treasurer shall be elected by the Council at its annual meeting and each shall hold his office for one year. The Councilors shall be elected for terms of five years each, being so divided that one-fourth of the number shall be elected each year. All these officers shall serve until their successors are elected and installed.

SEC. 3. The President, Vice Presidents and Councilors shall be elected by the House of Delegates, but no delegate shall be eligible to any office named in the preceding section except that of Councilor, and no person shall be elected to any office who is not in attendance at that Annual Session and who has not been a member of the Association for the previous two years.

ARTICLE IX.—FUNDS AND EXPENSES

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publications. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Sessions, for publications, and for such other purposes as will promote the welfare of the Association and profession.

ARTICLE X.—REFERENDUM

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members present, a majority of such vote shall determine the question, and be binding upon the House of Delegates.

ARTICLE XI.—THE SEAL

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XII.—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS

CHAPTER I.—MEMBERSHIP

SECTION 1. All members of component societies shall be privileged to attend all meetings and take part in all of the proceedings of the Annual Sessions, and shall be eligible to any office within the gift of the Association.

SEC. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a component society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this Association.

SEC. 3. No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of such disability.

SEC. 4. Each member in attendance at the Annual Session shall enter his name on the registration

book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION

SECTION 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session or as fixed by this Constitution and By-Laws.

SEC. 2. Special sessions of either the Association or of the House of Delegates shall be called by the President at his discretion or upon petition of twenty delegates.

CHAPTER III.—GENERAL MEETINGS

SECTION 1. The General Meetings shall include all registered members, delegates and guests, who shall have equal rights to participate in the proceedings and discussions and, except guests, to vote on pending questions. Each General Meeting shall be presided over by the President, or in his absence or disability, or by his request, by one of the Vice Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the entire time of the session so far as may be shall be devoted to papers and discussions relating to scientific medicine.

SEC. 2. The General Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same, but any expense in connection therewith must first be approved by the House of Delegates.

SEC. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

SEC. 4. No address or paper read before the Association, except that of the President, shall occupy more than twenty minutes in its delivery, and no member shall speak longer than five minutes, nor more than once on any subject.

SEC. 5. All papers read before the Association shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done it shall not be published.

CHAPTER IV.—HOUSE OF DELEGATES

SECTION 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the Association, and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But, if the business interests of the Association and profession require, it may meet in advance or remain in session after the final adjournment of the General Meeting.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every fifty members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its as-

sessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

SEC. 3. A majority of the registered delegates present shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the Association.

SEC. 4. It shall, through its officers, council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping-stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

SEC. 7. It shall encourage postgraduate and research work, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

SEC. 8. It shall elect representatives to the House of Delegates of the American Medical Association, in accordance with the Constitution and By-Laws of that body.

SEC. 9. It shall upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

SEC. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

SEC. 11. It may divide the counties of the State into Councilor Districts.

SEC. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committees may report to the House of Delegates in person, and may participate in the debate thereon.

SEC. 13. It shall approve all memorials and resolutions issued in the name of the Association before they shall become effective.

SEC. 14. It shall present a summary of its proceedings to the last general meeting of each Annual Session, and shall publish the summary in the transactions.

CHAPTER V.—ELECTION OF OFFICERS

SECTION 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect.

SEC. 2. The President, on the first day of the Annual Session, shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same councilor district. It shall

be the duty of this committee to consult with the members of the Association and to hold one or more meetings at which the best interests of the Association and of the profession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the name of one member for each of the offices to be filled by the House of Delegates at that annual session except that of President, who shall be nominated from the floor of the House of Delegates.

SEC. 3. The House of Delegates shall remain in continuous session on the first day of the annual session and complete the work coming before it at that session. It shall meet on the second day of the annual session to receive the report of the Nominating Committee and complete unfinished business. The election of officers shall be the first order of business after reading the minutes at this session. No new business shall be introduced at this session without the unanimous consent of the delegates.

SEC. 4. Nothing in this chapter shall be construed to prevent additional nominations being made by members of the House of Delegates.

CHAPTER VI.—DUTIES OF OFFICERS

SECTION 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the State and assist the councilors in building up the county societies, and in making their work practical and useful.

SEC. 2. The Vice Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, the Council shall select one of the Vice Presidents to succeed him.

SEC. 3. The Treasurer shall give bond for the trust reposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Association, and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Association. He shall pay money out of the treasury only on a written order of the Chairman of the Council countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings, and of the state of the funds in his hands. He shall charge upon his book the assessments against each component county society at the end of the fiscal year, which shall be December 31st; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

SEC. 4. The Secretary shall attend all meetings of the Association and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of

the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Session. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—COUNCIL

SECTION 1. The Council shall hold meetings during the Annual Session of the Association, and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall hold at least one meeting during the Annual Session of the Association, after the newly elected Councilors have been announced by the House of Delegates, for reorganization and for outlining the work for the ensuing year. At this meeting it shall elect a Chairman and a Secretary and the latter shall keep a record of its proceedings. It shall, through its Chairman, make an annual report to the House of Delegates at such time as may be provided. It shall be the Executive Committee of the Association during the interval between meetings. Three members of the Council, elected by the Council, shall be the Executive Committee of the Council and shall constitute a quorum for the transaction of business excepting that concerning the conduct of a member, when a majority of the membership of the Council shall be necessary to act; provided, the action of the Executive Committee of the Council shall be subject to the approval of the Council.

SEC. 2. Each Councilor shall be organizer, peace-maker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exists, for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each annual session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

SEC. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting

the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual Councilor or component society. Its decision in all such cases shall be final.

SEC. 4. The Council shall provide and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association, and shall have authority to appoint an editor and such assistants as it deems necessary. All moneys received by the Council, or its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association, and all orders on the Treasurer for disbursements of money in any way connected with the work of publication must be endorsed by the Chairman of the Council and countersigned by the Secretary of the Association. All matters of the Association pertaining to the expenditure of money for other purposes shall be referred, during the Annual Session, to the Council, who shall report upon the same within twelve hours, and if the House of Delegates orders the expenditure of money in connection with said report, the payment shall be made by the Treasurer as provided above. It shall be the further duty of the Council to hold the official bond of the Treasurer for the faithful execution of his office, annually to audit and to authenticate his accounts, and to present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Society during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary.

In the event of a vacancy in the office of the Secretary of the Association, or the Treasurer, the Chairman of the Council shall fill the vacancy *ad interim* until the next meeting of the Council.

SEC. 5. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the Chairman and Secretary of the Council, as such.

SEC. 6. The Council may upon request of a component society remit the state assessment of a member who has become totally and permanently incapacitated through mental or physical disability and has been a member in good standing during the three consecutive years immediately preceding his disability; provided, that the component society shall remit the county society dues of such member.

CHAPTER VIII.—COMMITTEES

SECTION 1. The standing committees shall be as follows:

- A Committee on Scientific Work.
- A Committee on Health and Public Instruction.
- A Council on Medical Education.
- A Committee on Defense.
- A Committee on Cancer.
- A Committee on Vaccination.
- A Committee on Nominations.
- A Committee on Arrangement.

And such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

SEC. 2. The Committee on Scientific Work shall consist of three members appointed by the President. One of these shall be the Secretary of the Association, and he shall act as the chairman of the committee. It shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates, or of the Association, or to the provisions of this Constitution and By-Laws. Thirty days previous to each Annual Session it shall pre-

pare and issue a program announcing the order in which papers, discussions and other business shall be presented, which order shall be adhered to by the Association as nearly as practicable.

SEC. 3. The Committee on Health and Public Instruction shall consist of five members and the President and Secretary. The members of this committee shall serve for a period of three years. Under the direction of the House of Delegates, it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, State and National affairs and elections. Its work shall be done with the dignity becoming a great profession, and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire Association upon questions of great concern, at such time as may be arranged during the Annual Session.

SEC. 4. The Council on Medical Education shall consist of three members, appointed by the President. One member shall be appointed to serve for three years, one for two years and one for one year; thereafter each year one member shall be appointed to serve for three years. The Council on Medical Education shall make (1) an annual report to the House of Delegates on the existing conditions of medical education in the state and in the United States; (2) make suggestions as to the means and methods by which the State Medical Association may best influence favorably medical education; and (3) act as the agent of the Missouri State Medical Association, under the instructions of the House of Delegates, in its efforts to elevate the standard of medical education.

SEC. 5. The Defense Committee shall consist of three members who shall, upon request and in compliance with the conditions hereinafter named, aid in the defense of suits for alleged malpractice instituted or threatened against any member of the Association.

CONDITIONS

(a) Any member whose annual dues have been received by the Secretary of the County Society on or before April 1 shall have the continuous protection provided for in this section. New members have a right to defense on receipt of their dues by the Secretary of the County Society.

(b) Any member whose annual dues have not been received on or before April 1 shall be delinquent from the first day of January of that year and shall remain so until his dues are paid. No member shall receive legal defense for any malpractice suit filed before the date of his enrollment as a member or during his delinquency; nor if the services for which malpractice is alleged were rendered wholly or in part before the date of his enrollment as a member or during his delinquency.

(c) Any member desiring to avail himself of the provisions of this section shall, within three days after any demand has been made upon him, present his request to the Secretary of this Association, together with a complete history of the case and the services therein rendered. The committee shall then, with the aid of its counsel, advise said member up to the time of the institution of suit. Should suit be filed, a copy of the plaintiff's petition must be immediately forwarded to the Secretary of this Association. The committee shall thereupon provide such medical expert and legal services of counsel as may be necessary, but in no case

shall the cost to this Association be in excess of \$100 for all such services. The Association does not obligate itself to pay, nor shall it pay in whole or in part, any damages agreed upon in compromise, or awarded after trial, nor shall it pay any of the expenses incident to the taking of depositions nor any of the costs of court.

(d) No member shall be entitled to the above-described defense should the charge of malpractice be brought jointly against him and a hospital or sanatorium in which he is, or at the time of the alleged malpractice was, financially interested.

(e) Such aid as is specified in this section refers to civil malpractice only and is not to be construed to apply to criminal prosecutions.

SEC. 6. The Committee on Cancer shall consist of three members who shall make an annual report of the prevalence of cancer in this state, its nature and the progress in its treatment.

SEC. 7. The Committee on Vaccination shall consist of three members to serve for three years, except that on adoption of this amendment one member shall be elected to serve three years, one to serve for two years, and one to serve for one year; thereafter each year one member shall be elected to serve for three years. It shall be the duty of this committee to make a report on vaccination in Missouri and to investigate the entire subject of vaccination and its relation to smallpox and other diseases and conditions; the first committee appointed under this provision to make a report of vaccination in Missouri in the last decade.

SEC. 8. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of Chapter V, Sections 2 and 3 of these By-Laws.

SEC. 9. The Committee of Arrangements shall consist of the component society in the territory in which the Annual Session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting places of the Association and of the House of Delegates and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER IX.—ASSESSMENTS AND EXPENDITURES

SECTION 1. An assessment of five dollars (\$5.00) per capita on the membership of the component societies is hereby made the annual dues of this Association, of which one dollar (\$1.00) shall be credited to subscription of THE JOURNAL for one year. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, list of delegates, and list of non-affiliated physicians of the county, to the Secretary of this Association on or before December 31st in advance of each Annual Session.

SEC. 2. Any county society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or the House of Delegates until such requirements have been met.

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes.

CHAPTER X.—RULES OF CONDUCT

SECTION 1. The Association recognizes and reiterates the principles laid down in the Principles

of Medical Ethics of the American Medical Association.

SEC. 2. It is unprofessional for a physician to recognize or support in any manner any school of medicine, or any alleged method of treating disease or injury, based on exclusive dogma or sectarian system or professedly limited to the use of certain methods or designated by special titles or otherwise reputed in the profession as irregular. For a physician to consult with, exchange material benefits with, or to recommend or support a practitioner of any such system is unprofessional and constitutes gross misconduct.

CHAPTER XI.—RULES OF ORDER

The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XII.—COUNTY SOCIETIES

SECTION 1. All county societies now in affiliation with this Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, upon application to the Council, receive a charter from and become a component part of this Association.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

SEC. 3. Charters shall be issued only upon approval of the Council or House of Delegates, and shall be signed by the President and Secretary of this Association. The Council or House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

SEC. 5. Each county society shall judge of the qualifications of its own members but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who is a citizen of the United States and who does not support nor practice nor claim to practice sectarian medicine, who shall apply on the prescribed form and subscribe for THE JOURNAL, paying the dues for the current year, may be entitled to membership. The provision requiring legal registration to practice medicine in Missouri shall not necessarily apply to graduates in medicine while engaged in teaching medicine in reputable medical schools. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 5a. A component society may at its discretion place active members who have reached advanced years and have long served the Association and profession on an "Honor List" and such members shall be known as "Honor Members." They shall enjoy all the privileges of active membership and shall be exempt from dues.

SEC. 6. Any physician who may feel aggrieved

by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council and to the House of Delegates.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county. No one shall become a member of any component county society, nor continue as such, who engages in contract practice with any lodge, society or individual, unless he shall receive for services rendered the regular fee, as per fee bill established by said society; provided that this shall not prohibit an agreement for a particular case nor apply to examinations for an adequate fee. No one shall become a member of any component county society, nor continue as such, who is guilty of soliciting patronage, or obtaining patients by a division of fees, or by other means of inducing physicians or other persons to bring patients to him for a consideration, for treatment or operation.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do postgraduate and original research work, and to give the society the first benefit of such labors. Official position and other preferences shall be unstintingly given to such members.

SEC. 12. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each fifty (50) members, or major fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of this Association, at least ten days before the Annual Session.

SEC. 13. The Secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Association, on or before December 31st in advance of each Annual Session, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

CHAPTER XIII.—ENTERTAINMENTS

No official entertainment shall be accepted by this Association during its Annual Session.

CHAPTER XIV.—AMENDMENTS

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that Session, after the amendment has laid upon the table for one day.

Emergency clause provides for immediately going into effect after adoption.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
 Montgomery County Medical Society, Dec. 15, 1921.
 Chariton County Medical Society, Dec. 23, 1921.
 Webster County Medical Society, Dec. 27, 1921.
 Clark County Medical Society, Jan. 13, 1922.
 Reynolds County Medical Society, Jan. 17, 1922.
 Camden County Medical Society, Feb. 8, 1922.
 Schuyler County Medical Society, Feb. 10, 1922.
 Perry County Medical Society, Feb. 13, 1922.
 Vernon County Medical Society, March 24, 1922.
 Pulaski County Medical Society, March 31, 1922.
 Atchison County Medical Society, March 31, 1922.
 Laclede County Medical Society, April 1, 1922.
 Oregon County Medical Society, May 29, 1922.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Eighth Meeting, April 24, 1922

1. PRESENTATION OF CASES.

A. THE STUDY OF THE BLOOD SUPPLY IN AN AMPUTATED LEG IN A CASE OF DIABETIC GANGRENE.—By MR. K. A. MARTIN.

Patient, female, age 60, who has been known to have had diabetes for about eight years. First evidence of gangrene on medial aspect of right heel occurred three months ago and has slowly progressed to the size you note in the photograph (5 cm. x 8 cm.). No pulse in dorsalis pedis artery could be demonstrated.

It has been the custom on Dr. Olmsted's service, for some time, to take lateral view X-rays of both legs of all patients who have gangrene of the feet. Diabetic patients with gangrene usually have marked arteriosclerosis. A favorable place to demonstrate this by the X-ray is by a lateral view of the space just in front of the tendon of Achilles. The posterior tibial artery passes through this space and if calcified shows up well in the plates. I have brought a few of these plates over to show you how well this can be demonstrated. Marked calcification has been demonstrated in every case of diabetic gangrene in this series except the one we are now considering. This plate shows no changes in the vessels.

It became necessary to amputate this extremity, and I thought it might be of interest to study the blood supply to see if the gangrene could be ac-

counted for. I profused the vessels with sodium citrate and then injected barium sulphate into the arteries. I then had an X-ray taken of the injected extremity.

From the X-ray it appeared at first that the leg was quite vascular, as well as the foot; even the fine capillaries of the foot are well filled. The posterior tibial did not fill neither did the upper part of the anterior tibial, but the peroneal artery shows plainly and is dilated. The lower part of the anterior tibial and the dorsalis pedis are well filled. The only visible connection between the filled vessels above (peroneal) and those of the foot is this fine communicating branch running across from the lower part of the peroneal to the lower part of the anterior tibial. This was verified by dissection.

It was found on dissection that the vessels that did not fill were cord-like and presented no lumen. The intima had hypertrophied to the extent that the lumen was completely obliterated. The vessels were not calcified. The walls of the anterior tibial distal to the obliterated lumen were paper-thin. The obliteration in the vessels stopped abruptly.

This case is of interest because:

- (1) The uncommon site of the gangrene.
- (2) The peculiar nature of the obliteration, beginning and ending abruptly, and the thinness of the vessel walls distal to the obliteration.
- (3) To show what a small collateral vessel may accommodate the needs of nutrition of the foot for at least a time.
- (4) The absence of calcification of the arteries.

DISCUSSION

Dr. W. H. Olmsted: The usual type of gangrene associated with diabetes is found involving the toes in the majority of instances. The type of arterial disease that we find in this form of diabetic gangrene is the calcifying arteriosclerosis. This case is exceptional in that it does not show calcifying arteriosclerosis. In fact the X-ray plates, as you have seen, were negative. The process in this case as Mr. Martin has so well shown is one of endarteritis.

Dr. Barney Brooks: In the presentation of this specimen Mr. Martin failed to make clear that the injection of the vessels was made through the popliteal artery. The great importance of the findings on injection and X-ray demonstration of the arteries is that the circulation of the entire foot and distal third of the leg was maintained by a very small collateral branch between the peroneal artery and the unobliterated end of the anterior vessel.

B. CONGENITAL AORTIC STENOSIS.—By DR. J. C. MCKITTERICK.

Boy, 14 years of age, apparently in good health, sent to the hospital for examination of the heart condition, which was discovered by accident during an examination by a school physician. The only subjective symptoms noted are feeling of exhaustion on running, when he says "thinks get black." School teacher says he is tired all the time. No history of rheumatism and no chorea, and no history of any other cardiac decompensation.

Ph. Ex. showed a well nourished boy with no complaints, no cyanosis, no enlargements of superficial veins of thorax and abdomen. He has enlarged tonsils and a follicular conjunctivitis. His heart is slightly enlarged, outline of cardiac dullness 4 cm. to the right, 9½ cm. to the left, very slight precordial bulge. A strong marked systolic heave in the 4th and 5th interspaces to the left; there is no retraction of the interspaces during systole. Palpation of the precordium reveals a thrill at the base. This thrill is long, coarse and distinctly systolic in time. It is felt over the pulmonic area as low as the

3d interspace, where it is most distinct to the left of the midsternal line. It then gradually shifts to the mid-line over the manubrium, then can be felt in the suprasternal notch and over the trachea. On auscultation loud systolic murmur is heard over cardiac area, loudest at the base, not influenced by change in position or breathing. It is transmitted up into the vessels of the neck over the trachea and can be distinctly heard in left supraspinous area, posterior. There is a soft systolic murmur heard over the apex, transmitted to the axilla. There is no venous engorgement, no edema, no clubbing of the fingers, no dyspnea, no collapsible pulse, liver not enlarged, no pulmonary congestion.

Blood pressure 95/75, his pulse is uniformly slow, average rate 73 per minute. E.C.G. shows no marked preponderance, polygraph tracing shows forcible aortic impulse at apex and very low radial pulse. His 7 ft. plate showed enlargement of the heart, right and left, without much widening of the arch.

Laboratory observations: Urine negative. R.B.C., 5,100,000. Hem. 90 per cent. W.B.C., 10,200. Wassermann negative. C.F.T. negative. Von Pirquet positive. Had uncomplicated tonsillectomy and adenoidectomy during stay in hospital. Apparently normal anesthesia. This case is of interest on account of the rarity of aortic stenosis of congenital origin.

DISCUSSION

Dr. W. McKim Marriott: Pure aortic stenosis in childhood is an extremely rare condition and diagnosis should be made only when all other possible causes of the symptoms and physical findings have been eliminated. This boy has not had rheumatism. He has had none of the ordinary symptoms of cardiac disease. There is a very marked disproportion between the forcible beat of the heart and the very small pulse. The murmur is loudest over the aortic area and is well transmitted to the vessels of the neck. The condition does not seem to be an atresia of the aorta at the isthmus for we do not find the disproportion in the volume of the pulse in the upper and lower portions of the body. Physical signs similar to those shown by this boy may occur with pressure of a mediastinal tumor upon the proximal portion of the aorta but fluoroscopic examination fails to reveal the presence of any such tumor. We seem forced to the conclusion that this is a case of stenosis at the aortic valve, probably of congenital origin.

Dr. Arthur E. Strauss: I have been interested in this case because I have but recently reported five cases of congenital heart disease—patent ductus arteriosus (Botalli). The first sign mentioned by Dr. McKitterick suggested patent ductus, but further examination, including the fluoroscopic findings, practically rules out such a diagnosis. That, in itself, is a very striking fact. Another point of interest in this case is the transmission of the murmur to the vessels of the neck, whereas in patent ductus transmission to the left and under the clavicle is the rule rather than upward. It is surprising that this boy does not show a left ventricular preponderance in the electrocardiogram. One would really expect to find such preponderance in view of the clinical diagnosis and X-ray picture.

2.* BONE ATROPHY: A CLINICAL STUDY.—By DR. NATHANIEL ALLISON and DR. BARNEY BROOKS.

From a study of the X-ray photographs of the bones of the extremities in more than one hundred cases of various diseases which result in lack of use of the extremities, it was found that non-use always produces marked changes in the bones. The

changes which were observed were the same regardless of the cause of lack of use of the extremities. The amount of change in bones was always proportionate to the extent and duration of the lack of use independent of its cause. There seemed to be, therefore, no warrant for the assumption that bone atrophy was ever a neurotrophic phenomenon.

In the adult non-use results in the bones becoming lighter, more fragile, more permeable to the X-ray. The size and shape of the bone are little changed. The cortex of the shaft of a long bone becomes thin and porous due to a marked increase in diameter of the medullary canal. The cancellous bone becomes more porous. The trabeculae become fewer and thinner.

In children lack of use results in changes in the shape and size of the non-used bone. This is due to the fact that growth of the bone is inhibited. The inhibition of growth is most marked in the diameter of the shaft. This leads to the diameters of the epiphyses becoming relatively greater than the shafts. Growth in length of the bone is also inhibited. Another important effect of the lack of use on the growth of bones is the fact that the epiphyseal cartilages disappear earlier than they should.

From the study of several fractures which occurred in bones which were markedly atrophied from non-use it was found that regeneration and callous formation was apparently not affected by the non-use.

The effect on atrophied bones of the re-establishment of function was observed in several cases, and it was found that a certain amount of recovery took place. The manifestations of recovery were increase in thickness of the cortical bone of the shaft, and increase in the thickness of the trabeculae of cancellous bone. Bone trabeculae, however, which had completely disappeared did not reform.

Changes in the shape and size of bones which resulted from lack of use during the growing period did not completely recover.

DISCUSSION

Dr. Loeb: The interesting experiments of Dr. Allison and Dr. Brooks point to the conclusion that under the influence of certain stimuli a building up of bone takes place; these stimuli are those which act upon this tissue in the process of its normal functioning, in a way similar to that observed in the case of the thyroid gland. Then likewise the normal functioning leads to the building up of the organ. In both cases absence of these specific stimuli leads to processes of absorption or solution. Both processes of solution and building up may go hand in hand. This seems to occur under certain conditions in the case of cartilage which we have been studying recently. I presume Dr. Brooks attributes these building up processes in the case of bone to the cells of the bone, to the periosteal and bone marrow elements.

Dr. Allison: I would like to add just a word or two to Dr. Brooks' description of this work. There are certain facts that are rather important clinically. We are called upon to treat children who have lesions in their bones, and this factor in deformity has been largely disregarded. I feel pretty certain that much of the resulting deformities in growing individuals who cannot use one or the other of their extremities is due to these atrophic changes in the bones. One case that we observed showed this particularly well, or rather, the comparison of two cases. They were women of about the same age, a little less than 30 years of age. Each had had infantile paralysis in early childhood, one before she had learned to walk, had lost the use of one of her lower extremities; the other one lost the use

of one lower extremity at the age of two years. When we observed them they were about 28 years of age. One of them had never used her leg at all in walking, and had used crutches; the other one had been forced to use her leg by putting on a stiffened support. The degree of paralysis was about the same—complete below the knee. Each had power in the thigh. The difference between these two sets of bones was very remarkable. In the woman who used her leg, in spite of the paralysis, the tibia showed very few changes compared with her normal tibia. The other woman who did not use her leg at all had practically an infantile tibia; it had not developed at all. I think that illustrates pretty well the importance of function and the very great importance of preserved function or re-established function as early as possible. This is particularly true of adolescence. Much of the deformity we feel is due to lack of use.

Dr. Barney Brooks: In regard to Dr. Opie's question I feel that bone atrophy is to be looked upon as an active process. It follows, therefore, that bone atrophy in all probability is more rapid with a good blood supply than with a diminished blood supply. The point is that bone atrophy and recovery therefrom are not processes associated with cell destruction and cell hyperplasia. The bone atrophy is a diminution in the matrix which is an extra cellular material.

3. THE EFFECT OF THYROIDECTOMY ON THE IODINE CONTENT OF THE BLOOD.—By DR. WM. A. HUDSON.

The author reviews the literature which shows the presence of iodine in the thyroid and indicates the close relationship between the iodine content of the thyroid and the regenerative activity of the thyroid cells. He shows by experiments that the iodine content of the blood is increased following thyroidectomy in dogs. This change in the iodine content of the blood takes place within forty-eight hours and is present as long as 106 days after thyroidectomy. It is not due to variations in the iodine content of the food nor to trauma of the gland during the operation. It is further shown that the iodine content of the blood approximates that before the thyroidectomy when fresh sheep's thyroid is fed to thyroidectomized dogs, and is again increased when the feeding of fresh thyroid is discontinued.

CONCLUSIONS

- 1. After thyroidectomy in dogs the iodine content of the blood is increased.
- 2. The administration of fresh thyroid gland of sheep by mouth to thyroidectomized dogs causes the iodine content of the blood to fall so that it returns to the normal preoperative level; when thyroid feeding is discontinued the iodine content of the blood is again increased.

DISCUSSION

Dr. H. L. White: I should like to ask Dr. Hudson whether or not he has conducted, or thinks it would be practicable to conduct iodine tolerance tests on his thyroidectomized dogs, which might be analogous to our present glucose tolerance tests?

Dr. Loeb: The experiments of Dr. Hudson are very significant; they seem to indicate an antagonism between iodine on the one hand and the specific thyroid hormone on the other. This would agree with the difference which we found between these two substances in the building up of the thyroid gland following extirpation of the greater part of this or-

gan. However, in our case the cells of the thyroid gland were the point of attack of these substances, while in Dr. Hudson's experiments the point of attack seems to be outside the thyroid gland. There is a possibility that Dr. Hudson's results may have to be explained in a way more consistent with this specific function of the thyroid gland. We know especially from the experiments of Eppinger that the thyroid hormone influences the movements of water and sodium chloride in our body. Possibly the effect of thyroid feeding on the fate of iodine would be similar to that on other substances; it would promote its movement out of the blood and its elimination from the body. This explanation would make unnecessary the hypothesis that tissues other than the thyroid gland are the specific seat of iodine metabolism.

Dr. Barney Brooks: In these experiments was the whole thyroid gland removed in all instances? Were any experiments performed in which the thyroid was partially removed, and, if so, were the results of these experiments such as to indicate that the partial removal resulted in less change than was found after a total removal?

Dr. W. A. Hudson: In answer to Dr. White's question, I carried on no experiments with that point in view. I have fed a number of animals on large amounts of tissue which contain large quantities of iodine, and under such conditions the iodine appeared later in the urine. In regard to Dr. Brooks' question, I can say that in a certain number of instances the thyroidectomy has been a true thyroidectomy, the parathyroids being identified and isolated with their blood supply while all of the thyroid tissue was removed. In a certain number of experiments it was found advisable to leave in at least a small portion of the thyroid along with the parathyroids. In some instances in which the gland was small the part left in place was a representative portion of the gland. There has been no effort made to determine the nature of the iodine—that is, whether it is organic or inorganic.

4. RESULTS OF FRACTURED FEMORA IN CHILDREN, WITH ESPECIAL REFERENCE TO OVERHEAD TRACTION.—By DR. W. H. COLE.

This review was made primarily to present the method and the results of treatment of simple fractured femora. The series represents the fractured femora of Dr. Clopton's service at the St. Louis Children's Hospital during the past five years.

ANALYSIS OF CASES

Altogether, thirty-five cases have been collected. They are classified in the following tables as to kind, location, etc.

Table I. Ratio of Simple to Pathological Fractures

	No. of Cases
Simple.....	{ Infants (1 year or under)... 5
	{ Children (1 to 12 years)...26
Pathological.	{ Osteomyelitis 2
	{ Osteitis Cystica 1
	{ Syphilis 1
Total	35

Table III. Influence of Kind of Fracture Upon Method of Treatment

		<i>Treatment</i>	
Oblique Fractures...	{	Overhead Traction.....	13
		Horizontal Traction.....	1
			14
Transverse..	{	Overhead Traction.....	5
		Plaster Cast.....	5
		Open Reduction.....	3
		Horizontal Traction.....	1
		Splint.....	1
		Modified Sleinman Pin....	1
			16
Greenstick 1+...		Splint.....	1
			31

Table IV. Location of Fractures

	Kind of Fracture	No. of Cases
Upper Third..	Transverse	3
	Oblique	0
		3
Middle Third.	Transverse	7
	Oblique	13
	Greenstick	1
		21
Lower Tibia..	Transverse	6
	Oblique	1
		7

As noted, 18 of the 35 cases were treated by overhead traction.

ANALYSIS OF RESULTS

It is quite definitely proven that anatomical results at times of discharge are no criteria of the ultimate results. Cases of transverse fractures, even when overriding after a few weeks' treatment with overhead traction, have returned with no shortening or limp. The only unsatisfactory result occurred in a case of greenstick fracture with anterior bowing. The fracture was ten days' old when received and therefore operative treatment was advised. The mother refused operation, and the child was discharged under protest. The patient returned two years later. Examination revealed marked anterior bowing, moderate limp and one-half inch shortening. It is quite certainly proven that alignment of fragments is much more important than the position of the ends of the fragments. Considering the entire group of fractures, we have found the method of overhead traction much more applicable and satisfactory than any other method of treatment.

DISCUSSION

Dr. Barney Brooks: The statement has been made that in cases in which the bone was obviously shortened by overriding of the fragments that subsequently the length of the bone has increased to that of the unfractured side. I seriously doubt if this statement would stand the test of careful measurements of the bones.

5. THE COLORIMETRIC ESTIMATION OF HAEMOGLOBIN WITH ESPECIAL REFERENCE TO THE PRODUCTION OF STABLE STANDARDS.—By DR. E. H. TERRILL.

A satisfactory stock solution may be prepared by centrifuging defibrinated or oxalated blood, removing the serum, adding sufficient distilled water for laking, then hydrochloric acid to a concentration of about 0.1 N. After standing for 24 hours to allow full color development, it is filtered through

a hardened paper, and a perfectly clear solution obtained. Concentration to a rather thick syrup is accomplished by an electric fan after which the solution is standardized and measured into 2 c.c. brown glass ampoules. Ten per cent. of glycerine may first be added to prevent any slight sedimentation. Standards of any desired strength may be prepared by diluting with the required amount of 0.1 N hydrochloric acid. Fading occurs slowly, about 8 per cent. in 11 months, the greater part during the first three.

A dry powder from which standards may be prepared by weight may be prepared by the following method: Red cells are washed four times with normal saline, laked with ether, and the cell stroma removed by centrifugalization. The resulting liquid is treated with aluminum cream to remove the last traces of serum protein, and alcohol is added to make 20 per cent. of the volume, followed by $\frac{1}{2}$ volume of N. 0.25 hydrochloric acid. After standing 24 hours, it is evaporated to dryness by an electric fan or over phosphorous pentoxide in vacuo. The residue is finely pulverized. It is a stable dark brown powder dissolving easily in distilled water to a perfectly clear brownish yellow solution.

The color produced by the same amount of powder, prepared at different times from different kinds of blood is constant, making recourse to gasometric standardization unnecessary. 1.48 mg. per c.c. of solvent gives a color equal to that of 1 mg. of hemoglobin per c.c. as determined by Van Slyke's oxygen absorption method.

Solutions for routine use are best prepared by dissolving a small amount of powder in sufficient distilled water containing 10 per cent. glycerin to give the solution twice the final required strength. When completely dissolved, an equal volume of 0.2 N hydrochloric acid is added. It should be allowed to stand for an hour before use. If kept in brown glass bottles, such solution keeps from 4 to 6 weeks.

Transparent films may be prepared by mixing a concentrated acid hematin solution with gelatin and pouring on large cover glasses. These are cut to the desired size and mounted in balsam.

They may be standardized against a known acid hematin solution and employed in place of it in the Duboscq type of colorimeter.

The turbidity of all acid hematin solutions as usually prepared, does not allow accurate readings on bloods of widely different hemoglobin content, since turbidity is a relatively constant factor and not proportional to the hemoglobin content. By first laking the blood by adding it to distilled water, it may be reduced until negligible.

For routine work, a pipette containing 50 cu. mm. which can easily be filled from a finger prick, is used. This is filled, the blood delivered into 5 c.c. of distilled water in an accurate 10 c.c. graduate, and the pipette rinsed. After laking, which requires only about half a minute, it is made up to 10 c.c. with 0.2 N hydrochloric acid. After standing 10 or 15 minutes it may be read, corrections being made from Newcomer's equation $Xy = -c$, where X = the time in minutes since the addition of the acid, $y = 100$ per cent. of color developed, and $-c = 40$.

This method has been employed in a large number of determinations and has been found practical, convenient and accurate.

DISCUSSION

Dr. W. H. Ohmsted: I hope most of you understand what this work means both from the standpoint of chemistry and of practicability.

The standard solution that is used in the Sahli hemoglobinometer does not retain its full color more

than one month's time—fading inevitably occurs. So that in order to keep the standard solution of full color new solutions must be made up at least monthly. It is because of this fact, that most practitioners use the Tallquist scale. In order to standardize standard solutions used in the Sahli hemoglobinometer, one must calculate the hemoglobin by such a method as Von Slyke's. This all entails considerable amount of routine work. A great deal of research, some of which Dr. Terrill has spoken of, has been done in order to obtain the constancy in the standard solution, without, up to the present, satisfactory results.

I believe Dr. Terrill's acid hemitin albumen in powdered form is the first successful solution of our problem. All that entails is the weighing once a month of a definite amount of powder, making up the acid hemitin solution and distributing it in the Sahlis in use.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Eighty-Ninth Meeting, May 8, 1922

1. PRESENTATION OF CASES.

A. HIGH TENSION TREATMENT OF X-RAY IN THE CASE OF A TUMOR.

—By DR. SHERWOOD MOORE.

B. TUMOR OF THE CEREBELLUM.—

By DR. ERNEST SACHS.

This boy of thirteen years presented the typical picture of a cerebellar tumor, bilateral nystagmus, a tendency to fall forward when walking, and ataxia of both hands, more of the right, however, than the left. These symptoms suggested that he had a tumor near the middle lobe of the cerebellum. At operation, a large gliomatous cyst was found on the anterior surface of the vermis which after it was opened was found to contain a small gliomatous nodule about the size of a cherry. This was excised and a large vein entering the straight sinus had to be clamped in order to do this.

My prime purpose in showing the case is because it illustrates, I think, rather strikingly that Barany's contention that the middle lobe of the cerebellum controls movements of the pelvic girdle is probably not correct for this boy had perfect control of his pelvic movements at all times. The case rather supports the contention of Victor Horsley that the cortex of the cerebellum has extremely little function and as long as the nuclei of the cerebellum are not injured considerable portions of the cortex may be either destroyed by a tumor or removed by operation without any harmful effect.

This type of tumor is among the most favorable that we see and after their removal it usually gives a permanent cure.

2. HEMORRHAGIC LESIONS OF THE PLACENTA AND THEIR RELATION TO WHITE INFARCT FORMATION.

—By DR. F. P. McNALLEY and MR. W. J. DIECKMANN.

The authors described four types of hemorrhagic lesions. 1. Red infarcts of Young, which he thinks are the beginning of the usual white infarct, and found four such cases. 2. Diffuse infiltration of the placenta with blood, so-called hepatization, which they found in eight cases. 3. Small irregular cavities usually filled with blood, which they found in eighty-seven cases. 4. Large, sharply demarcated collec-

tions of blood, which they found in forty-three cases. Of a total of 320 placentae examined, these lesions were found in 123. They confirmed in part Young's work, that a white infarct may be red in the beginning and also show that collections of blood can undergo changes, that is laying down of fibrin, by which process they are converted into areas identical with white infarct in the gross, but in the formation of which villi play no part.

They are inclined to accept Young's idea that the villi are dependent on the maternal circulation for nourishment and not on the fetal, and that there can be white infarct formation without an endarteritis of the fetal vessels as claimed by Williams. They feel that the term "red infarct" has been used very loosely and should be applied only to those infarcts described by Young. Collections of blood should be called hematomata and the diffuse infiltration of blood should be called hepatization.

DISCUSSION

Dr. Barney Brooks: In some recent experimental work in which the effect of ligation of arteries and veins has been studied, I have been interested in red and white infarct formation.

I am convinced that the formation of a white infarct is the result of a complete deprivation of an area of tissue of blood.

The formation of the red infarct is due to the deprivation of the tissues of blood just below that quantity sufficient for a preservation of vitality or to a complete deprivation of blood followed by a re-establishment of circulation through the collaterals into the tissue which has already been devitalized.

The conditions of which Dr. McNally has spoken, it would seem to me, would be incorrectly termed infarcts, as the lesions he has described appeared to me to be organized hematomas.

Dr. O. H. Schwarz: I would like to ask if there is any relation between any particular lesion and cases of toxemia?

Dr. F. P. McNalley: In regard to Dr. Graham's question, our cases were practically all house cases and there were very few who had syphilis. In those who did have it, the lesions were the same as those who had not. In regard to Dr. Schwarz, there were four cases of toxemia included in this series and all showed the same lesions as were found in those free of symptoms. In regard to Dr. Brookes' question, he probably misunderstood me. In conclusion I said we do not think that red infarct should be applied to these, but hematomas. We think they are not infarcts in any sense of the word—they are hematomas and not infarcts.

3. A STUDY OF BLOOD PRESSURE IN RELATION TO TYPES OF BODILY HABITUS.—By DR. J. W. LARIMORE.

Interest in the correspondence of visceral form, position and tonus to bodily habitus as observed in gastro-intestinal X-ray studies suggested the analysis of some available data as to the relation of blood pressure to the types of bodily habitus, sthenic, hypersthenic, hyposthenic and asthenic.

The conceptions of bodily habitus as followed in this analysis are those formulated by Mills. Classification is made difficult by transitional types. All subjects are not pure sthenics or asthenics, and classification by external topographical criteria only assumes that topography and tonicity are inseparable in their hereditary transmission. It is conceivable that heredity can endow an individual with topographical characteristics tending toward the sthenic type, but hold a dominant asthenic characteristic of tonicity.

The subjects for this data were unselected applicants for factory work, and their previous occupation

is unknown. Classification of each subject was made prior to taking his or her blood pressure. The blood pressure readings were all made under uniform conditions.

Charts showing graphic tabulation of the blood pressure readings were presented, together with tables giving arithmetical tabulation of these. Other charts were shown giving the arithmetical mean of systolic and diastolic blood pressure, body surface, and age, for groups of each type of bodily habitus selected according to decades of age.

SUMMARY.

In a group of 417 factory workers the blood pressure is analyzed for its relation to bodily habitus. In this group the sthenic habitus is accompanied by a higher blood pressure than is the asthenic habitus and the pressure accompanying the hyposthenic habitus is intermediate.

The average blood pressures are approximately the same for the male and female asthenics, being 106.8 mm. systolic and 63.3 mm. diastolic for the males and 105.7 mm. systolic and 68.2 mm. diastolic for the females.

The pressures for the hyposthenic groups are also approximately the same, 116.3 mm. systolic and 71.7 mm. diastolic for the males and 115.6 mm. systolic and 72.3 mm. diastolic for the females. The sthenic group shows a higher pressure for the males, 126.3 mm. systolic and 78.8 mm. diastolic, compared to that of the females, 118.4 mm. systolic and 73.4 mm. diastolic.

These relations do not change when the types are separated into groups for age decades.

There is a very small direct correspondence between the types for body surface and the decreasing blood pressure.

DISCUSSION

Dr. Danforth: In addition to whatever clinical or diagnostic importance it may have this paper seems to me of very great interest from an anthropological point of view as well. One of the important problems in this connection is to determine what are the essential elements of a type, that is, what groups of characteristics tend to be closely correlated, and which show only random association. This adds another trait to those which must be taken into account in characterizing a type. The suggestion has been made that many racial differences, as well as differences in sub-types, are due primarily to differences in the endocrine balance, particularly during development. I should like to ask Dr. Larimore if it is probable that the differences which he observed are attributed to differences in tone of the musculature of vessel walls and if so, whether there is any evidence that would tend to differentiate between an inherent peculiarity in the musculature of each type and a difference in their respective endocrine outputs.

Dr. J. W. Larimore: There are no observations regarding the tonicity of the skeletal muscles as related to bodily habitus, that I know. However, as I stated at the start, this study was suggested by the variations of gastric tonus noted in X-ray studies of the gastro-intestinal tract. The clearance time of the stomach varies with the bodily habitus, and also its type and general tone. The form of the stomach is influenced by the regional capacities of the abdomen, which vary with habitus.

4. ANOMALIES OF BILE DUCTS AS A FACTOR IN THE PATHOGENESIS OF CHOLECYSTITIS.—By DR. M. G. SEELIG.

Based on the presentation of a case history of kinked cystic duct, Dr. Seelig emphasized the re-

lationship existing between anomalies of the bile ducts, and the consequent impediment to bile flow, with resultant stagnation of bile in the gall-bladder.

Aschoff and Bachmeister have shown to their satisfaction that bile stasis may lead to aseptic stone formation, and that secondary to the stone formation the gall-bladder becomes infected. This theory is in contrast with the theory of Naunyn, who holds that the first essential to gall-stone formation is a catarrhal inflammation of the mucous membrane of the gall-bladder.

Irrespective of the absolute correctness of either of these theories, the important fact is that a stasis of bile in the gall-bladder may be responsible for a set of symptoms which clinically simulate the presence of gall-stones, and which initiate the early stages of those symptoms which accompany the disease cholelithiasis.

The significance of anomalous bile ducts is two fold. In the first place, they create technical difficulties for the operating surgeon, and in the second place they may be responsible for that type of cholecystitis which is primary in the gall-bladder. This type of primary intravesical cholecystitis should not be lost sight of. In the mind of the essayist it seemed reasonable to assume that it occurred with greater frequency than does the interstitial type of cholecystitis, described by Graham and Peterman, and proved by them to originate in a focus of disease far removed from the gall-bladder itself.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met at Smithville at high noon, Monday, June 26, 1922, at the palatial residence of Dr. and Mrs. E. C. Hill. Muddy roads from recent rains held back a number from attending, yet thirteen members and their wives sat down to such a dinner as only the good Smithville ladies know how to get up. Drs. Hill, Rupe, Woods



Wives of Clay County Members at the Smithville Meeting.

and Peterson were the committee on arrangements. Drs. Howard Hill, J. S. Lichtenberg and Dr. Lorie, of Kansas City, were invited guests. And if ever a confirmed bachelor feasted to fullness, that man was Joe "Lightning Bug." We all "seen him" and we know!

After dinner, the scientific program claimed the attention of the members for some two hours, while the visiting ladies were whisked away through a maze of delightful entertainment.

Dr. E. H. Miller, "the Dean of Clay County Medicine," read the paper of the day, being a discussion of the many reflex conditions emanating from diseased pelvises. The Kansas City visitors led the discussion.

Dr. Suddarth could not refrain from mentioning his famous "paper therapy and prophylaxis" and Dr. Matthews raked some of the modern practices fore and aft. Every member participated in the meeting, and all commended Dr. Miller for his splendid paper. The whole ended by Dr. E. C. Hill, our president, paying a beautiful tribute personally to the essayist.

Our absent brethren missed something when they failed to attend this meeting.

Now, I am sending herewith a photo group, complimentary to the doctors' wives. I sincerely hope it may be reproduced in the JOURNAL, as an humble tribute where so much glory is due. The next meeting will be held in Kearney, beginning at noon, the last Monday in August.

JOHN J. GAINES, M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in regular session on Wednesday, June 28, in the court house at Clinton. Present were Dr. J. G. Beaty, who was called to preside, Dr. E. C. Peelor, Dr. S. W. Woltzen, Dr. S. A. Poague, Secretary Douglass and Dr. Murray C. Stone of Springfield, guest.

Dr. Stone had been invited to lecture on typhoid fever and gave us a good history of the pathology by the findings in laboratory tests, and how to prove the differential diagnosis from malaria; a well conceived and well delivered talk. He gave as prevention true hygienic, sanitary measures that are surely necessary these times.

Dr. L. L. Smith came to hear the discussion.

Drs. Poague, Peelor, Woltzen and Beaty asked questions and told of their experiences.

F. M. DOUGLASS, M.D., Reporter.

LAWRENCE-STONE COUNTY MEDICAL SOCIETY

The regular monthly meeting of Lawrence-Stone County Medical Society was held Tuesday, June 6, at Baptist Hill, Mt. Vernon. At this time the members of the Society took an opportunity to let their non-medical friends know just what they are doing by inviting them to the meeting and making it a real, old-fashioned basket picnic. The feature of the day was the dinner and we have only to remember that it was prepared by the ladies of Lawrence-Stone County to know that nothing was lacking to make it a red letter event in that community. If we are to believe that "the way to a man's heart lies through his stomach" then there surely were some male hearts captured at that dinner. Everyone enjoyed the occasion to the utmost, the only regret being that on account of the summer vacation there will be no more meetings until September. The program follows:

Call to order. Roll call.

Reading minutes of previous meeting.

Business session.

Music.

Dinner.

Music. Invocation, Rev. D. N. Manley, Mt. Vernon.

Address of Welcome, Rev. J. M. Carter, Mt. Vernon.

Response, Dr. T. T. O'Dell, Aurora.

Music.

"The Evolution of Modern Medicine," Dr. C. W. Russell, Springfield.

"The School Child's Health," Prof. Harry Moore, Mt. Vernon.

Talk, Dr. J. W. Bruton, Missouri State Sanatorium.

Music.

"The Physician and His Flock," Rev. J. J. Ehrstein, Mt. Vernon.

R. C. ROBERTSON, M.D., Secretary.

BOOK REVIEWS

OBSTETRICS AND GYNAECOLOGY. Edited by John S. Fairbairn, M.A., B.M., B.Ch. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.), Obstetric Physician St. Thomas' Hospital, etc. Cloth. Pp. 950, 175 illustrations. London: Henry Frowde, Oxford Medical Publication, American Branch, 35 W. 32d St., New York City, 1921.

If one were to compile "Who's Who" in the obstetric world of Great Britain, the names would be included in the list of contributors to this remarkable, encyclopedic volume, which comprises both obstetrics and gynaecology, as indicated by the title.

The scheme of the work is to assist in closing the gap between the two branches of our art which are so interwoven and at the same time so divorced by their chronology; the one dates from the beginning of history, the other is traced back only to Lawson Tait in 1877.

Every contribution is a monograph on the subject under consideration and has the fullest elaboration necessary to its discussion and logical conclusion.

Among the most striking chapters are those on Menstruation, by Johnstone, and the Menopause, by Thomas George Stevens; the Diagnosis of Pregnancy, the Induction of Abortion and Labour, by the Editor; Twilight Sleep or Amnesic Narcosis, by W. Osborne Greenwood; Version, by Hastings Tweedy, of the Rotunda Hospital; Forceps Delivery, by W. E. Fothergill, of the University of Manchester; Uterine Hemorrhages, by Beckwith Whitehouse; Abdominal Operations, by Cuthbert Lockyer, of Charing Cross Hospital.

A most exhaustive discussion of the New-Born, by Pritchard, Cameron and Willett, constitutes Part IV.

Where there is such a profusion of value it is difficult to discriminate. The book will be prized by every physician fortunate enough to buy it and to master any part of its contents.

G. C. M.

LA TUBERCULOSE PULMONAIRE. ETUDES DE PHISIOLOGIE CLINIQUE ET SOCIALE. Par Léon Bernard, Professeur à la Faculté de Médecine de Paris; Médecin de l'Hôpital Laennec; Membre de l'Académie de Médecine. Paper. Price, 10 fr. net. Pp. 258. Paris. Masson et Cie. 1921.

Your reviewer has not read anything recently giving as clear an exposition of the present theories of pulmonary tuberculosis as this book of Bernard's. In his first chapter on the "Present Conception of Tuberculosis," he lays stress on two important factors—first, the quantity of the infecting agent; second, the stage of immunization of the victim. His statistics, unfortunately, are practically all French. His viewpoint would be greatly supported had he used also statistics of American and English origin. In the same way, in his quotations

he does discuss once in a while a German view, but rarely does he get away from the continental European authorities.

His discussion of the social relations of tuberculosis is excellent and complete. It puts the matter on the right basis, and of course gives one the reasons why Professor Bernard has been selected to be practically in charge of the work of the Rockefeller Commission in France which is waging a campaign against tuberculosis.

We hope that the book will be translated into the English or at least that those who can read the French will secure it. G. H. H.

SURGICAL ASPECTS OF DYSENTERY. By Zachary Cope, B.A., M.D., Surgeon to Out-Patients, St. Mary's Hospital; Surgeon to the Bolingbroke Hospital. Oxford University Press, 35 W. 32nd St., New York. \$5.00 net.

On account of the scanty literature on the surgical aspects of dysentery, this book should meet with popular approval. The work is based on the experience of the author in the surgical complications arising in about two thousand cases of dysentery during his service in Mesopotamia in the late war.

The author discusses the subject under three headings: First, as a complication of surgical conditions; second, from the standpoint of surgical conditions which may be simulated by dysentery or surgical conditions that produce symptoms of dysentery,—as hemorrhoids, or malignancy of the bowel; third, complications of dysentery needing surgical attention,—as perforation, peritonitis, structure of the bowel, and arthritis.

Amebic abscess of the liver receives a full discussion and the diagnosis and treatment adequately covered. An excellent bibliography is appended. C. S.

TREATISE ON FRACTURES IN GENERAL INDUSTRIAL AND MILITARY PRACTICE. By John B. Roberts, M.D., and James A. Kelly, M.D. Second edition, revised and entirely reset, with 1081 illustrations: Radiograms, drawings and photographs. Publishers: J. B. Lippincott Company, Philadelphia.

A treatise on fractures which undertakes the discussion of the various types of fractures that occur in the human skeleton is a formidable task. While it must necessarily omit a great many of the pet methods that have given good results in the hands of various men, it should not be merely a relation of the author's experience and methods.

The book by Roberts and Kelly is opportune, coming at a time when the experiences of the late war have altered fundamental practices in the treatment of fractures, and stabilized certain others. The authors have happily appreciated this in revising their previous work.

Few exceptions can be taken to the authors' broad principles regarding fractures laid down in the preface to this edition, and the summary in twenty-six items given in the preface is well worth studying both before and after reading the book or any chapter of it.

It is the conviction of the reviewer that a book setting forth and fully illustrating the notably bad practices so common in the treatment of fractures would probably be of more benefit than any book yet published. The authors of this work, however, have added to their summary of sound principles a detailed description of methods and appliances used in the treatment of fractures of various types and have added to this a wealth of illustrations—X-rays, photographs and diagrammatic drawings—to make it a book well worth while for reference. J. E. S.

MEDICAL ELECTRICITY FOR STUDENTS. By A. R. I. Browne, Member of the Chartered Society of Massage and Medical Gymnastics, Teacher of Medical Electricity at the Western Infirmary, Glasgow. The Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. American Branch, 55 West 32d Street, New York, 1921. 231p.

The author states in the preface that the book is written for students preparing for examination in medical electricity of the Chartered Society of Massage and Medical Gymnastics. In the first part of the book the principles of electricity, chemical action, various cells, magnetism, and electromagnetic induction are taken up with a description of the necessary instruments.

Part two deals with medical apparatus and describes batteries. Various currents from the main, with switchboard, galvanoset and condensers, form a separate chapter. Earth free apparatus, interrupters and accessories together with the care of apparatus are clearly given in detail.

Electrical treatment forms the third part of the volume. The effects of electricity on the body and ionic medication with the method of application, the effects of burns, take up two chapters. Muscle and nerve testing, electric baths, radiant heat and light, static, high frequency, diathermy treatments and diseases for which the treatments are given, are the closing chapters.

The book is nicely printed on good paper and for students or nurses wishing to take up the subject of medical electricity will furnish interesting and instructive reading. E. H. K.

ANATOMY OF THE HUMAN ORBIT AND ACCESSORY ORGANS OF VISION. By S. Ernest Whitnall, M.A., M.D., B.Ch. (Oxon), M.R.C.S., L.R.C.P. (Lond.). Professor of Anatomy McGill University, Montreal. Illustrated largely by photographs of actual dissections. Oxford University Press. London: Henry Frowde and Hodder & Stoughton. American Branch, 55 West 32nd Street, New York.

No ophthalmologist can read this volume and not have a better conception of the pathological conditions met with in every-day practice. Though it is essentially an anatomical work, it is an altogether worth-while volume and should be possessed by or accessible to every student of ophthalmology.

The work is divided into four parts: (1) Osteology: the bones forming the orbit, its relations, and the accessory air sinuses of the nose. (2) Eyelids: the eyebrows, eyelids, conjunctiva and lacrimal apparatus. (3) Contents of the orbit: the globe (external configuration), ocular muscles, blood vessels and nerves. (4) Appendix: the central connection of the nerves.

It is difficult to make osteology attractive reading to the average reader, yet the author has done exceedingly well in this respect; the subsequent chapters are easier reading.

In addition to the text there is an appended bibliography of 21 pages. The work is well bound, printed in legible type on good paper and is profusely illustrated. The volume is singularly free from typographical and other errors and gives every evidence of being well edited. The subject matter originally formed the substance of a series of lectures given to candidates for the Oxford Diploma of Ophthalmology, and is here presented in an amplified and completed form. Many little items of valuable collateral knowledge are scattered through the text. As an evidence of the exceeding care used by the author is the pointing out of the incorrect spelling of Zeis. Zeis, of Zeis glands, is usually and erroneously spelled Zeiss. The illustrations add much to the value and attractiveness of the book. W. F. H.

THE SPLEEN AND SOME OF ITS DISEASES. Being the Bradshaw Lecture of the Royal College of Surgeons of England, 1920. By Sir Berkeley Monyihan, Leeds. Cloth. Price, \$5.00. Pp. 129, with 13 full-page diagrams. Philadelphia: W. B. Saunders Co., 1921.

This important monograph, written in clear, readable style, covers the surgery, physiology and pathology of the spleen, and sums up and sifts out in a volume small enough to be easily read yet large enough to be comprehensive, the whole of the enormous literature on this organ and its diseases. The diagrams of the functions of the spleen in health and disease are graphically illuminating. The chapter on differential diagnosis consists of a single tabulation of the various disorders relating to this organ. Colored plates illustrate the text in discussing the liver in its relation to the spleen.

There comes a time in the consideration of any important scientific subject when it becomes necessary for someone to authoritatively crystallize the whole thought on the matter. This Sir Berkeley Monyihan has done for us in his splendid essay on the spleen.

N. F. O.

THE ANATOMY OF THE NERVOUS SYSTEM FROM THE STANDPOINT OF DEVELOPMENT AND FUNCTION. By Stephen Walter Ranson, M.D., Ph.D., Professor of Anatomy in Northwestern University Medical School, Chicago. With 260 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company. 395 pages.

The author has endeavored to include within one volume all that the medical student requires for his guidance in studying the anatomy of the nervous system. This he has done quite ably. The literature is well covered, thus making it a good book for one whose time does not permit extensive research of the literature, which is true with the average medical student who must cover many subjects in a comparatively short time.

The brain stem seems to have been considered segmentally. While this is good it would probably be of distinct advantage to consider the functional mechanisms of the individual tracts or systems. Like many other similar books, the blood supply is not treated except perhaps to mention it incidentally.

This book is a descriptive anatomy, is more up to date than any other volume the reviewer knows of, and is the best work of its kind for the student.

J. P. M.

NOUVEAU TRAITE DE MEDECINE. Publié sous la direction de G. H. Roger, Fernand Vidal, P. J. Teissier. Fascicule III, Maladies infectieuses, 556 pp. avec 62 figures et 4 planches en couleurs. 40 fr. net; Fascicule VII, Avitaminoses, Maladies par agents physiques, Troubles de la nutrition. 552 pages avec 32 figures dans le texte. 35 fr. net. Paris, Masson et Cie, 1921.

We have in a previous issue reviewed the first volume of this system of medicine which will consist of twenty-one volumes in all. The third and seventh volumes are before us. They are of a very high order of excellence. In the third volume Vidal, Lemmierre on colon bacillus infections. The account of systemic colon bacillus septicemia is interesting though strange to one's ears. There is a long article on trench fever by Richard Strong of Harvard. In the seventh volume a departure from the usual text-book classification of disease is noted with a section on avitaminoses, that is, pellagra, scurvy, beri-beri, rickets and infantile scurvy. The volumes are well illustrated.

L. C.

CLINICAL TUBERCULOSIS. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. With a Chapter on Laboratory Methods by Joseph Elbert Pottenger, A.B., M.D., Assistant Medical Director, and Director of the Laboratory, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. Volumes I and II. Pathological Anatomy, Pathological Physiology, Diagnosis, and Prognosis. Second Edition. With one hundred and five text illustrations and charts, and six plates in colors. Cloth, 8vo., pp. 707 and 725. St. Louis: C. V. Mosby Company, 1922. Price, \$15.00.

The paper and general appearance of this edition is a great improvement over the last one. The contents also seem to present a more finished effect.

As might be expected, Dr. Pottenger has worked out in greater detail his conception of the nerve influence in the matter of tuberculosis. About a third of the second volume is taken up with case histories and their interpretation. With regard to these, one might hope that the description would be more objective. In this work one misses the historical standpoint which is so helpful when one attempts to understand the principle upon which the campaign against tuberculosis must be conducted. In fact, if one were to criticise the general principles of the book, it would be that the author loses sight of this standpoint and makes the matter of the treatment of tuberculosis rather that of personal non-infective disease. Yet, with all that, we realize that the material that Dr. Pottenger has gathered together here is of great importance and must be at the command of those who would treat the disease.

The book remains, therefore, the most complete exposition of the subject of tuberculosis that we have in the English.

G. H. H.

THE CLINICAL STUDY OF THE EARLY SYMPTOMS AND TREATMENT OF CIRCULATORY DISEASE IN GENERAL PRACTICE. By R. M. Wilson, M.B., Ch.B., Late Assistant to Sir James Mackenzie under Medical Research Committee, Late Cardiologist War Office Trench Fever Committee, Consulting Physician Ministry of Pensions. With a foreword by Sir James Mackenzie, M.D., F.R.S., F.R.C.P. London: Henry Frowde and Hodder and Stoughton. American Branch, 35 W. 32d Street, New York.

The mechanism of the variations in pulse rate is still awaiting an explanation. Whether an increase in rate is due to a suspension of vagal activity or to an increase of that of the sympathetic, or perhaps to still other causes, is in the majority of cases unknown. To say, as some have done, that it does not matter is merely to reveal ignorance of the methods, scope and necessities of clinical observations.

In the present book Dr. Wilson has attacked this problem. In doing so he has proceeded along the lines laid down by his master, Sir James Mackenzie. It consists in the accumulation of a large number of carefully recorded facts; these are then analyzed in the light of our knowledge of the heart's mechanism, both in physiological and diseased states. On this basis he has built up an hypothesis of considerable interest. It explains most of the pulse phenomena by the action and close interaction of the vagal and sympathetic systems and in some of its aspects is most alluring. One must remember, however, that our knowledge of these systems and of the hormones that control them is as yet so elementary that any hypothesis, like that of Wilson, must be largely speculative.

The book is well written, profusely illustrated by tracings chiefly made with the crude Mackenzie polygraph, and valuable for its data, whatever one may think of its theories.

A. E. T.

THE JOURNAL OF METABOLIC RESEARCH. Edited by Frederick M. Allen. Volume I, Numbers 1 and 2. Published monthly by The Psychiatric Institute, Morristown, New Jersey. Price, \$10.00 per year.

Research workers in metabolic problems have long found the matter of publication a difficult one. Since their papers appealed to a somewhat limited circle, the general journals have either declined or delayed the publication of such articles. Hence, the appearance of a journal in which the metabolic investigations can be published promptly and in extenso will be welcomed both by the investigator and by the clinician. Of the 14 articles in the first two numbers, 10 are by the editor alone or in collaboration, and all but one are devoted to diabetes mellitus. Doubtless, subsequent issues will show a better balance in both directions.

A. E. T.

TUBERCULOSIS IN INFANCY AND CHILDHOOD. By J. Claxton Gittings, M.D., Frank Crozer Knowles, M.D., and Astley P. Ashlurst, M.D., with twenty-three illustrations. J. P. Lippincott Company, Philadelphia and London, Publisher. Price, \$5.00.

This new book of 273 pages and 23 illustrations is intended for the general practitioner, but is a valuable addition to the library of the pediatricist or anyone who deals with children, as it is the work of three authors in different lines of specialism. After a general consideration of tuberculosis in children, with the principles of diagnosis and the status of tuberculin therapy, the authors consider the disease as it affects the cervical lymph glands, the upper respiratory tract, the bronchial nodes, the pleura, heart, skin, abdominal organs, genitourinary tract, bones and joints, and the generalized and miliary manifestations. The treatment is then considered in the prevention of the disease and the care of the patient. Nutrition, housing, fresh air, rest, food, heliotherapy, hygiene and the handling of special symptoms are discussed briefly and to the point.

The work of Anthon Ghon in establishing the primary tuberculous focus in the lung in children is quoted and accepted as correct. An interesting portion of the chapter on the respiratory tract is the subject of tuberculous bronchitis and its later manifestations—caseous and fibrocaseous pneumonia.

Whether or not we are willing to accept the theories of von Behring, Hamburger and others, that tuberculosis always begins in childhood, it is certain that the disease must be taken into account in diagnoses in early life. Hence a book that helps the reader to become proficient in the manifestations of the disease at this age will be of great help, especially so since there are few such extensive works. This volume is well worth while.

F. C. N.

BLOOD TRANSFUSION. By Geoffrey Keynes, M.A., M.D. Cantab., F.R.C.S. Eng., Second Assistant, Surgical Professorial Unit, St. Bartholomew's Hospital. London: Henry Frowde and Hodder & Stoughton. Oxford University Press, American Branch, 35 West 32nd Street, New York. 1922. Price, \$3.00.

This is the most satisfactory book that has yet appeared on the subject of blood transfusion. It starts with a short chapter on the history which is interesting as well as instructive. There follows a very complete chapter on the indications for transfusion. This is complete and is fair and temperate

in judgment. The chapter on the physiology and pathology of blood groups seems to have neglected nothing. The selection of the donor furnishes the theme for the next chapter and finally the technic is considered. The bibliography of 300 numbers gives every appearance of having been carefully compiled. Many English books have been published which have not represented in value their cost, but this one is cheap at any price.

J. M. B.

THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN. By Zachary Cope, B.A., M.D., M.S. Lond., F.R.C.S. Eng. Henry Frowde and Hodder & Stoughton, 35 West 32nd Street, New York.

The reviewer picked up this book, scarcely thicker than a thumb, with a feeling of weariness. It seemed to be too small to contain anything worth while. After reading a few pages he concluded it might be a good book for beginners. It soon became apparent that either the reviewer was only a beginner, or, that the book was good for grown-ups. The book shows so many things in a new light and shows some things that may be new that one need not feel humiliated in recommending it heartily as being well worth a reading by surgeons of all degrees of development.

J. N. B.

ESSENTIALS OF LABORATORY DIAGNOSIS. Designed for students and practitioners. By Francis Ashley Faught, M. D., formerly director of the department of clinical medicine and assistant to the professor of clinical medicine, Medico-Chirurgical College, etc., Philadelphia, Pa. Containing eleven full page plates (four in colors) and seventy-eight text engravings. Seventh revised and enlarged edition. F. A. Davis Company, Publishers, Philadelphia, 1921. Price, \$4.50 net.

The reviewer is impressed with the fact that the author has accomplished what the title of this book implies. He has restricted himself to the actual essentials of laboratory diagnosis and does not devote a lot of space to theories and impractical procedures.

The technic recommended involves methods and procedures requiring a minimum amount of materials, equipment and technical skill, at the same time the methods are sufficiently reliable and comprehensive for use in practical clinical laboratory work giving a maximum amount of reliable information.

The clinical interpretations are brief and to the point and are confined to known facts and not a lot of space devoted to theories and possibilities.

The book can be recommended to anyone doing general practical clinical laboratory work, as a valuable manual and reference text.

W. C.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM. By William Meddagh Dunning, M.D., Consulting Otologist, Fordham Hospital, New York City, etc. Surgery Publishing Co., New York.

This little monograph is a disappointment to the student of rhinology. Much has been done during the past few years not included in it, especially on the "saddle-back nose."

Dr. Dunning seems to adhere to the "reflex" origin of asthma in regard to nasal obstruction of septal origin. Most rhinologists incline to the view that asthma is a symptom of anaphylaxis, and when the patient is relieved or cured of the bronchial spasm by the removal of the septal obstruction it is due to the withdrawal of the specific protein, which is often of bacterial origin, disappearing with good drainage of the nasal cavities.

O. J. D.

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ORIGINAL ARTICLES

THE LATE EFFECT OF WAR GAS ON THE LUNGS AND ITS RELATION TO PULMONARY TUBERCULOSIS*

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This paper had been prepared and was on the program to be read by Dr. Meade at our annual meeting in Jefferson City. But Dr. Meade died suddenly on March 10. The paper was read in its turn at the Scientific Session by Dr. Frank I. Ridge, of Kansas City. Before beginning to read Dr. Meade's paper, Dr. Ridge said: "Dr. Meade's death was partially, I think, the result of the gases upon which he wrote, combined with diabetes. He was a diabetic for over twenty years. He forced himself into service and into the front line trenches and they could not get him out until after the war was over. He stayed there and worked with the boys, putting the best effort of his life into taking care of the disabled soldiers. He worked hard and sympathetically. Having been through the things they had been through he appreciated their viewpoint and put a lot of time and careful observation upon these cases of gassing. He had been gassed three times himself and was once reported in the casualty list as dead."

In May, 1919, the author read a paper before the Kansas State Medical Society on the immediate effects of war gases. These effects have a very definite pathology. At autopsy in those early cases who lived only a few hours after gassing, there was found a superficial necrosis of the mucous membranes of the larynx, trachea and bronchi. In those cases who survived for forty-eight hours and then died the findings were mostly those of bronchial pneumonia, with scattered areas of collapsed lung due to the bronchioles being plugged with an exudate.

For the past three years we have had an opportunity to study the late effects of these gases and feel that we can now come to some definite conclusion with regard to the sequelae which are liable to follow the less severe cases of gassing. When the irritation of the gases is not severe enough to produce early death,

these cases all go on to recovery leaving only the results of healing, such as fibrosis around and about the hilus and bronchial tree. These scars constituting pulmonary fibrosis are best studied by the X-ray. On fluoroscopic examination the apices are usually evenly lighted and clear. However, there is found a thickening and density about the hilus, with peribronchial fibrosis, extending towards the periphery of the lungs, the lower lobe being more extensively involved. The apices as a rule remain free. There is in the majority of cases a limitation in the movements of the diaphragm. Quoting C. E. Dennis, in the *Medical Journal of Australia*, "We frequently find (with the X-ray) old lesions such as calcareous glands or patches. Often small, rounded, oval spots the size of sweet-pea seeds are seen scattered just outside the hilus. These are probably due to cross section views of fibrosed bronchioles or an obliterated blood vessel. They are not dense enough to be calcareous, and too well defined to be inflammatory (tuberculosis) nodules. The entire chest shows a diminished translucency."

A resume of the histories taken from over three thousand cases examined by the War Risk Insurance Bureau in Kansas City, brings forth these cardinal symptoms as the after-effects of poisoning by war gases: Cough and expectoration, shortness of breath, pain, with a feeling of constriction about the lungs and under the sternum, this pain at times being so severe that it borders upon the pain of an angina, especially so at the beginning of exercise. However, one outstanding feature is that the pain gradually disappears as the exercise is continued. Few cases give a history of hemorrhage. General weakness and fatigue are prominent. As a rule, there is no loss of weight. The appetite is usually good and the pulse is slightly accelerated. Temperature is normal in most of these cases unless there is an associated acute bronchitis, when the temperature may be ninety-nine or one hundred degrees. The cough is usually disturbing at night and is aggravated by the inhalation of smoke. (Practically all ex-service men are "Camelites.") I have been able to

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

induce a few to refrain from smoking and have found some improvement, but the number is too limited to make this a statement of fact.

Psychoneurosis plays a very important role in these cases. Most of these men are neurotics. There is a marked tendency for them to take their disability more seriously than is warranted and to exaggerate the severity of their symptoms. Whether this is due to fatigue or lack of respiratory quotient I am unable to say. I have hopes, in the future, of working these cases more thoroughly along metabolic lines.

On physical examination, by inspection, we usually find a limited diaphragmatic motility on both sides, with shallow breathing, as is demonstrated by Lytton's phenomena. Palpation does not elicit any superficial pain on pressure over intracostal muscles, although in some instances there are signs of muscular atony and degeneration. However, this may have been present prebellum and not the result of gas fibrosis. Percussion as a rule shows a relative impairment of resonance over the bases, with practically no change at the apices. In the more extensive cases where there is found an asthmatic tendency there is hyper-resonance. On auscultation the findings are usually those of a patchy bronchitis, with fine crackling or sibilant rales at the bases or just under the scapula. Inspiration is rough and harsh, sometimes cog-wheel in type. The rales do not come at the beginning of inspiration as is the case in tuberculosis, but come later and last to the end of the inspiratory cycle.

When first taking up this work I was inclined to diagnose these cases as tuberculosis, but upon repeated examinations of the same men and comparing their present condition with that as shown in their previous records, I am convinced that all of the symptoms are gradually decreasing in severity. These men returning for repeated examinations do not show any loss of weight. There is no increase in the extent of their previous lesions and the vast majority state that they are feeling better. For this reason we are forced to come to the conclusion that the above enumerated symptoms have no relation to pulmonary tuberculosis. This mistake in diagnosis has caused a great amount of suffering to the ex-soldier and his family. There are many who think that if a soldier has been gassed he is more susceptible to tuberculous infection of the lungs. However, I now believe that we can say to the public upon the best authority (which is based upon universal observation) that a man is no more liable to tuberculosis as the result of gassing than is a man who has never been gassed. In fact, there are many clinicians who think he is not so susceptible

In compiling statistics upon this subject it

is very difficult to come to any definite conclusions by direct observation of gassed cases. For this reason, we have adopted the following method in arriving at our conclusions: We have taken the histories of five hundred and seventy-one cases of definite, proven, pulmonary tuberculosis and tabulated them according to a history of gas or "flu." Of this number there were eighty-nine, or sixteen per cent., with a history of gas. There were four hundred and eighty-two, or eighty-four per cent., without a history of gas. There was a hundred and four, or eighteen per cent., with a history of "flu." There were four hundred and sixty-seven, or eighty-two per cent., without a history of flu. There were three hundred and seventy-one, or sixty-five per cent., without a history of either gas or flu.

From these observations we are compelled to believe that neither gas nor "flu" play any great factor in predisposing the ex-soldier to pulmonary tuberculosis.

Colonel Turk, while in France during an epidemic of acute infections of air passages, subjected his men to the light fumes of gas as a cure and preventive with very encouraging results. In fact, so apparent were the benefits that he was commended by Colonel Reynolds for the few infections occurring in his division.

Every observer with whom I have consulted upon this subject is of the same opinion, namely, that war gas poison in the latent stages does not activate tubercular infection. Kinberg and Delhrum in their series of a thousand soldiers suspected of tuberculosis, found one or two in which the inhalation of gas bore any relation to the onset of their illness. Stewart of "ninnette" says that tuberculosis is not an effect from gas poisoning. Robert S. Berghoff states that gas victims irrespective of the type of gas and the severity of the attack sustained show no predisposition towards active pulmonary tuberculosis.

I am convinced that all chemical irritants activate and produce certain pathological changes in the lungs, but I do not believe that such irritants are responsible for tuberculosis and will call your attention to Major Gerald B. Webb's article upon the effects of the inhalation of cigaret smoke in tuberculosis. He concludes that tobacco inhalation is a protective agent against tuberculosis and cites his examination of recruits. There was a much greater number of non-smokers discharged on account of tuberculosis than there were of smokers, and there were fewer cases of tuberculosis among cigaret smokers than among pipe and cigar smokers, showing that the inhalation of the smoke caused an irritation which gave some degree of protection. It has been shown by clinicians for years that

coal miners are less susceptible to tuberculosis than are those of the ordinary occupations. The Italians observed that sulphur fumes retarded tuberculosis. In London before the trains were electrified the mephitic vapors in the underground tubes were supposed to be of value to the consumptive employees.

TREATMENT

Due to the short time which we have had for observation of these cases it would be folly for me to pretend to offer any method of treatment. However, my own experience leads me to disagree with the statements of Hawes, that these men need rest. They have had too much rest. I do agree with him that a tuberculosis sanitarium is a poor place for them. That they are sick men there is no doubt, and there is no question that they need treatment. I have noticed particularly that the farmers, who are out of doors taking light exercise, and those men in the city who play golf or indulge in some such light outdoor recreation, get along much better than do those who lie around in hospital beds and tuberculosis sanatoriums. One officer I know who was quite severely gassed, in describing his symptoms stated that when he started to play golf it was quite difficult for him to breathe until he had passed the second or third hole, and that the pain under his sternum was so severe that he frequently had to stop before he had walked the distance of his strokes. However, the farther he went the fewer symptoms he felt and on the last nine he really felt stimulated. If we think of the condition pathologically and mechanically as an interference to the ingress and egress of air because of the scar tissue, dilatation suggests itself as treatment. This then would make some light system of exercise a logical method of treatment to follow. The psychoneurotics would also be benefited by an outdoor life. Some outdoor agricultural pursuit under the supervision of competent and skilled trainers would be of great benefit to these men. Let us then recommend that some one of our ambitious politicians who wishes to be known to posterity as a constructive statesman, sponsor a bill to establish government agricultural experiment stations and farms to give employment to these men. That, instead of following the present program of rehabilitation and filling much needed hospital beds with men who are neither helpless nor mentally deranged, they listen to the advice of trained observers and make it possible for a more rational cure, and in so doing make them useful citizens.

BIBLIOGRAPHY

- John B. Hawes 2nd: Boston Medical and Surgical Journal, July 7, 1921.
Tovell and Elliott: Internat. Journal of Surgery, Dec., 1916.

- Elliott: Trans. National Tuberculosis Association, 1917.
Spicer: Western Medical Review, June, 1921.
Miller: American Review of Tuberculosis.
C. E. Dennis: Medical Journal of Australia, Nov., 1919.
Berghoff: American Laryn., Rhinol. and Otol., 1919.
Webb: American Review of Tuberculosis, 1919.
Sabshin: New York Medical Journal, Aug., 1921.
Pillsbury: American Journal of Roentgenology, April, 1921.

TREATMENT IN TUBERCULOSIS*

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I am not bringing anything new or startling, but I think reiteration of our old conceptions and knowledge is a good thing. If we keep before us the essential facts and not wander off chasing too many false gods, it would probably be better for our patients and the community at large. For that reason I have simply put together some of the salient facts which we all know.

To attempt writing upon this subject without first discussing the different pathological entities with which we are dealing is, to say the least, a very poor method. However, I am attempting to deal with the disease as an infectious process and will only go into the general treatment, that is, treating the infection irrespective of the variable pathological changes which occur in the different types.

Since the beginning of time there have been exploited, at intervals, specific cures and methods for treating tuberculosis, most of them of value only to the originator or laboratory that produced them. Also, there have been many and devious fads propounded, the majority of which were absolutely devoid of virtue. Then the medical profession itself has been guilty of gross quackery in its dealings with this disease, either through ignorance or a fear of jeopardizing their professional reputation by failures. Where there is the greatest need and justification for optimism the average physician is an out-and-out pessimist. Because of this attitude the patients are thrown upon their own imagination and grasp at any panacea which may be offered by advertising charlatans. Again, many half-baked reports are published in the medical literature, all of which are eagerly grasped and featured by the daily news bureaus. In many instances the facts are distorted and the conclusions not in the least according to the actualities.

Many of our old conceptions of the proper management of tuberculosis were fallacious, but were based upon truths as deduced from clinical observations of a very limited number of cases and we tried to make them fit all cases. The treatment of tuberculosis is essentially a specialty, the primary specialty of each patient being his pathology, reaction and re-

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sistance. Hardly any two cases present the same symptoms and hardly any two give the same reactions to similar stimuli.

In the beginning, we must realize that tuberculous infections are non-pyogenic, are low grade, and self-limiting in character. Such being the case, our early treatment is logically supportive. Supportive absolutely and non-stimulating in the earlier stages. In the later stages, usually after secondary infection has occurred (as is the case in any granulomatous disease), stimulation is frequently necessary to obtain healing, overstimulation being destructive.

The rapidity with which a cure or arrest may be made in any tuberculous infection in reality depends more upon early diagnosis than on any other factor. The handling of the patient known to be infected is, as I said in the beginning, an individual specialty; not only must the extent of the infection be taken into consideration, but his economic conditions, his temperament and the sociological atmosphere of his family or surroundings must be weighed. We are all too prone to pack our patients off to sanitariums or different climates or altitudes, without first making a careful study of the case; and in so doing wash our hands of the affair and absolve ourselves from all responsibility thereto attached. I think one is justified in stating that 75 per cent. of the early cases will recover just as rapidly in the home environment as they will elsewhere, if not more rapidly, provided, of course, that the same methods are pursued. An early case at sea level, with perfect rest, both physical and mental, with proper hygienic surroundings, will do better at sea level or in this Middle Western region than it would at an altitude, non-regulated and ambulatory.

Let us then consider the essential features in the treatment of early cases. First, and pre-eminent first, we must have absolute rest; immobilization of the affected tissue as far as practical and a conservation of energy, so that the patient's physiological functions are not thrown out of balance in trying to maintain a metabolic equilibrium commensurate with the increased demands of the infection. Rest accomplishes both of these; first, by lowering the respiratory rate there is a more prolonged respiratory diastole, so to speak, and a lowered respiratory metabolism, both mechanical and circulatory. For this reason I do not favor or recommend altitude to my patients. The higher the altitude the faster the respiratory rate and the greater the peripheral pulmonary circulatory strain. It seems folly to send a patient to an altitude and then immobilize a lung by pneumothorax. Second, rest requires a lower caloric energy, and it becomes unnecessary to overburden a digestive system, already im-

paired by toxemia, by forced feeding beyond its capabilities.

Under the best conditions we sometimes must resort to mechanical means in selected cases, and use strapping methods or pneumothorax. Here I want to say that adhesive plasters applied for immobilization purposes are absolutely futile unless they are so placed as to limit the movements of the diaphragm. This is best accomplished by using a broad strip running around the entire body and covering the floating ribs on both sides. This strip should be pulled as tight as possible and other strips be placed unilateral and applied as usual. Pneumothorax undoubtedly is of value in selected early cases where there is free movement of the lung, and I believe, as do others, that it undoubtedly hastens recovery.

The diet in these early cases should be as near to the normal habits of the patient as possible, and yet should maintain a suitable balance. Forced feeding often does more harm than good. It is no uncommon occurrence to find patients with a gastro-intestinal upset due to overfeeding who will lose more ground during one week of indigestion than they have gained in months of forced feeding. At the same time one must not overlook the fact that we must keep up nutrition. I believe that if we take the average requirement in calories and add 10 per cent. we have a good balance. By doing this it is evident that we have in reality increased our caloric intake by 30 per cent. as it is estimated by Chittenden that 20 per cent. of the normal intake is expended in self-locomotion, and we are supposedly dealing with an individual at rest, i. e., about 40 calories per kilo or 14 calories per pound. Children require relatively higher heat values and relatively more protein materials. One of the best adjuncts to a diet of any kind in tuberculosis is pure cod liver oil. This holds especially true in children. However, it is inadvisable to force its use when it causes intestinal upsets and is distasteful to the patient.

The value of sunlight has long been recognized in the treatment of tuberculosis, and, like all other stimulating agencies, it has immense therapeutic value when not abused. Its use, like all other remedies, must be regulated to the reaction of the individual patient. The action of the actinic ray is tonic up to a certain point. Beyond that it is distinctly toxic and depressing. In the beginning it would be far better to expose only portions of the body at one time and carefully note the temperature, blood pressure and symptomatic reactions of your patient. The dosage, regulated according to time and area exposed, should be gradually increased in the absence of reactions until the

maximum tonic effect is obtained. In surgical and cutaneous tuberculosis, heliotherapy has its greatest value. The same holds true of X-ray in treatment. However, X-ray in the treatment of pulmonary tuberculosis is practically of no value excepting in those cases of asthmatic type where there is marked involvement of the peribronchial lymph glands at the hilus of the lungs. In some of these cases I have seen very encouraging results obtained. The use of the Kromayer lamp is becoming more general, especially in localities where sunlight is an uncertain quantity. The use of the lamp should be attended with the same caution as the other methods of stimulation. So far there have been few reports on its use, but most of them are favorable.

At the present time we can truthfully say that we have no specific remedy for tuberculosis. That is, we have no therapeutic germicide which will destroy tubercle bacilli *in vivo* and which can be used with safety. With the introduction of tuberculin great expectations were aroused which, to date, have not been realized. It is definitely acknowledged that none of the numerous tuberculins or their refinements produce immunity. Thomason of England, working with tubercle bacilli, has succeeded in dividing the bacilli into five distinct chemical groups and removing the soluble toxins. His experiments apparently substantiate the theory that the only beneficial results obtained by the use of tuberculin are through its antigenetic properties, and the same results are obtainable without the water soluble toxins usually included.

Korbach has used the autogenous tubercle vaccine made from the patient's sputum. He also used the live, virulent organisms in his inoculations and claims good results from this method. However, it is problematical and the liabilities for grief are too great for this method to come into general use.

Undoubtedly the use of tuberculin does increase the leucocyte count. By its use there is a distinct increase in number and the neutrophilic ratio is increased. At best, we can only claim assistance in the treatment as an added tonic effect, and its greatest asset cannot exceed 15 per cent. in the general cure. In cases complicated by secondary infections other vaccines are used in conjunction with tuberculin. These should be preferably autogenous and must be administered with discretion. Each dosage of tuberculin should be regulated so that the reaction does not cause any systemic symptoms. Focal and local stimulation are the desired objectives. That this stimulation is not specific I have previously mentioned. In all probability any foreign protein would give the same beneficial results. Weicksel, working along this line with a Ger-

man preparation called Caseosan, has reported very favorable results and especially dwells upon its stimulating action upon phagocytosis. While Caseosan is a proprietary preparation, I am led to believe that it is a lactalbumen.

Friedman tuberculin has no advantage over any other preparation and does not produce any immunization.

There are some who advocate the so-called auto-intoxication methods in the treatment of tuberculosis. By this means an attempt is made to regulate the physical exercise of the patient in such a manner, that the activity in the focal lesions, stimulated by exertion, will throw out autogenous tuberculin. This method undoubtedly has factors in its favor, but at best is very unreliable in that there can be no definite control of dosage and that variable thermal and atmospheric conditions are a great factor in determining the energy co-efficient required for given tasks. The safe plan would be to use this practice only in the more chronic types of infection.

The similarity between the lepra bacillus and the tubercle has led to much experimentation as to the value of the salts of chaulmoogra oil as a method of treatment in tuberculosis. This work, carried on by Culpepper, Ableson, Rogers, Johnson, Voegtlin and Smith, has been very inconclusive, and they are all of the opinion that the derivatives of chaulmoogra oil are valueless as far as any specific action is concerned.

At the present time there are being carried on in Germany some experiments with urea salts in the hope that some preparation may be found which will be of a specific nature in its reaction towards tuberculi *in vivo*.

The question of vocational training and methods for making the indigent tuberculous partially self-supporting is one that requires careful consideration. There is no denying that the psychological effect of some useful occupation reflects to the good of these patients. That the work should be very carefully selected and that great care and discrimination should be used in the selection of cases, goes without question. Unsupervised labor will practically always end in disaster. In the beginning of training the patients should be informed that they are really on probation and whether or not they shall continue to work will depend upon whether or not their symptoms are aggravated by their tasks. Agricultural pursuits are undoubtedly the better adapted for the great majority, but one must realize that open-air pursuits without necessary precautions are not the part of wisdom. Group work or piece work is inadvisable, in that it gives birth to the desire to excel and will cause both overexertion and mental as well as social dissatisfaction. That training and treatment

should be separated is inconceivable, as one of the greatest benefits derived from this system is that the partial remuneration given for work enables the patient to prolong the time of treatment without imposing a financial hardship upon himself and family.

In conclusion, I wish to emphasize the following principles as fundamental:

Physical activities of the patient must be limited to a metabolic balance.

Food is essential, but overfeeding is dangerous. Taking on weight does not mean a cure.

Mental rest is as essential as physical rest. Optimism is warranted and necessary to results.

Tuberculous infections in themselves are self-limiting. If not, the world would be depopulated.

That we are constantly developing a greater racial and universal immunity to the disease.

There is no specific cure for tuberculous infections.

That the treatment must be symptomatic and essentially selective individually.

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REFERENCES

1. R. Burnand: *Internat. J. Pub. Health*, 2:375, July-Aug., '21.
2. E. A. Peterson: *Southwest J. Med. and Surg.*, 29:64, June, '21.
3. Chaulmoogra oil in leprosy and tuberculosis; successful treatment of leprosy by injections of soluble preparations of fatty acids of chaulmoogra and other oils and its bearing on tuberculosis problem, L. Rogers, *Lancet*, 1:1178, June 4 '21.
4. Chaulmoogra oil in treatment of tuberculosis, W. L. Culpepper and M. Ableson, *J. Lab. and Clin. Med.*, 6:415, May 7, '21.
5. Chaulmoogra oil and its derivatives in experimental tuberculosis, value of, I. M. Johnson, C. Voegtlin and M. I. Smith, *J. A. M. A.*, 77:1017, Sept. 24, '21.
6. Chaulmoogra oil in tuberculosis; treatment of tuberculosis with derivatives of chaulmoogra oil, preliminary report of cases, T. J. Basley, *New York M. J.*, 114:369, Sept. 21, '21.
7. Exercise treatment of tuberculosis, F. Humbert, *Internat. J. Pub. Health*, 2:193, March-April, '21.
8. General treatment of tuberculosis, K. Turban, *Atschr. f. Tuberk.*, 34:635, Oct., '21.
9. Indications for X-ray therapy in tuberculosis, F. H. Kuegle, *Minnesota Med.*, 4:398, Aug., '21.
10. Influence of chaulmoogra oil on tubercle bacillus, J. A. Kolmer, J. C. Davis and R. Jager, *J. Infec. Dis.*, 28:265, March, '21.
11. Manganate of calcium and potassium in treatment of tuberculosis, C. Ferry, *Progres. Med.*, 36:108, March 5, '21.
12. Non-specific treatment of tuberculosis, J. Weicksel, *Munchen. med. Wchnschr.*, 68:938, July 29, '21.
13. Rest in tuberculosis, E. D. Price, *New Orleans M. and S. J.*, 74:395, Dec., '21.
14. Search for a specific treatment of tuberculosis, a bacteriologist's attempt, W. C. Wilkinson, *Brit. M. J.*, 1:307, Feb. 26, '21.
15. Treatment of mild and convalescent tuberculosis patients with limited means, E. T. Shields, *Texas State J. Med.*, 17:390, Dec., '21.
16. Case selection for tuberculin therapy, F. H. McCarley, *J. Oklahoma M. A.*, 14:344, Dec., '21.
17. Focal reaction and prognosis of tuberculin treatment in surgical tuberculosis, E. Duschak, *Med. Klinik*, 17:682, June 5, '21.
18. Vaccination; active immunization by means of non-virulent and non-toxic living tubercle bacilli, C. D. Aaron, *New York M. J.*, 113:91, Aug. 13, '21.
19. Auto-vaccine made from sputum, R. Korbach, *Ztschr. f. Tuberk.*, 33:332, April, '21; *ab. J. A. M. A.*, 77:1544, May 28, '21.
20. Treatment of tuberculosis with vaccines of living avirulent organisms with gradually increased dosage, F. Klopstock, *Deutsche Med. Wchnschr.*, 47:211, Feb. 24, '21.
21. Tuberculosis immunizing vaccine, N. Raw, *Brit. M. J.*, 1:594, April 23, '21.
22. Vaccines in treatment of tuberculosis, A. Minnig, *A. M. Rev. Tuberc.*, 5:421, July, '21.
23. Die Reaktion des tuberkulösen Organismus aus intra kutane, Verump fürz saurefectes saprophytes in derum tuberkulin, Brune Lange and Erich Lange, *Deutsches Med. Wkschr.*, 48:8-248.

THE NEWER TREATMENTS OF BRONCHIECTASIS*

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Of the numerous diseases of the lungs with which many are afflicted, bronchiectasis is the most loathsome and the most disturbing to the patient and to his friends.

The consciousness of the foul odor which frequently accompanies this disease makes a hermit of the sufferer and makes his life a burden. While tuberculosis has received much attention, and pneumonia kills or cures, this disease has received very little attention and

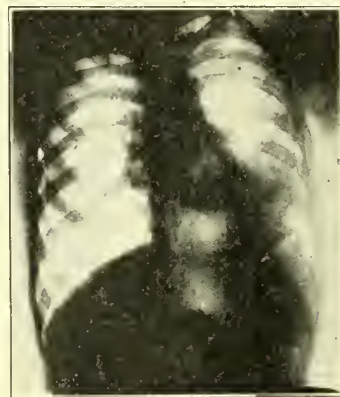


Fig. 1. Shows left lung contracted and somewhat collapsed. In the shadow of the cardiac region is seen a rather dense mottling, which at operation was shown to be bronchiectasis. This lung failed to collapse on account of adhesions. The right lung shows evidence of compensatory air content. (Taken from a print, the plate having been lost, hence outlines are not as clear as could be desired.)

leaves its victims invalids for many years. The authors in the past two years have become interested in this problem and have had the good fortune of seeing twenty cases in varying degrees of severity. In this paper we will cite several cases, describing the pathology, etiology, diagnostic features, and the treatment which we use.

Many cases of bronchiectasis have had the disease for years; one case had this condition for thirty-five years. The older patients consider their condition due to chronic bronchitis and take their handicap as a matter of fact.

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As long as they are satisfied there is no reason to attempt any of the treatments to be outlined, but the young patient with a foul sputum, strangling cough, frequent attacks of fever and hemorrhages, are the cases that represent the type to be discussed. Bronchiectasis cannot be recognized early, as physical signs and roentgen rays can only reveal the condition

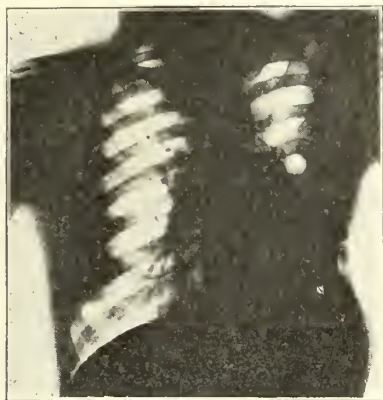


Fig. 2. One year after operation of lobectomy; shows the chest wall collapsed on the left lower part of the chest with a good remaining upper lobe.

when the lesion is relatively large. However the symptom complex is very definite.

Pathology.—The bronchi are dilated and filled with purulent material; the dilatation later may produce cavities varying in size from a pea to three inches in length to one-half inch in depth. The cavities are usually multilocular and connect with a large bronchus. The lower lung is usually affected; the alveolar portion of the lung and smaller bronchi are not usually diseased; consequently a considerable amount of good lung tissue surrounds the lesion (this accounts for the difficulty in localizing the condition by physical signs). The usual causes are pneumonia, influenza, tuberculosis, abscess and aspiration of foreign bodies.

Diagnosis.—The most important symptoms are spasmodic cough followed by the expectoration of a large amount of purulent sputum. The sputum may be foul and very thick and streaked with blood, or may be accompanied by severe hemorrhages. The attacks usually occur in the early morning or on lying down. Patients soon learn the position they must assume to establish a better drainage. The fingers and toes usually show the well-known osteoarthopathy hypertrophic. A large number of cases do not show this condition, however. There is little loss of weight; in fact, most patients are well preserved. The hemorrhages are rather profuse and apparently just as severe as in tuberculosis. This type of patient shows many signs and symptoms

of tuberculosis but the sputum is always negative for tubercle bacilli except in the out-and-out tuberculous bronchiectasis. In a recent paper by one of us,¹ it is shown that it is necessary to make frequent search for tubercle bacilli in the sputum before making a positive diagnosis of tuberculosis at any time.

Physical signs are very confusing as there may be considerable emphysema around the lesion. The signs elicited on the chest wall depend on the energy of vibration passing through from the depth of the lesion; consequently there is not sufficient change to be able to detect differences in the lung by this method. When the lesion is superficial we find dullness, diminished breath sounds, and diminished whisper. A diagnosis of pleural effusion is frequently made and the lung punctured for diagnostic purposes but this ends in a dry tap. In old chronic cases, one can hear coarse bubbling rales and high pitched squeaks; occasionally the classical signs of pneumonia may be present and persist for years.

Roentgen ray plates and fluoroscopic examinations are usually definite. There is a more or less dense shadow extending from the hilus



Fig. 3. Shows a shadow in the right lower chest continuous from the hilus, diagnosed as bronchiectasis. A large amount of sputum was expectorated daily.

downward toward the diaphragm. The extreme axillary area of the lung may be relatively normal. Frequently this dense shadow is hidden in the cardiac shadow or in the diaphragmatic sinus. It has been our custom to take stereoscopic plates tangentially; this brings out the lesion better. Diagnostic pneumothorax will often aid in showing the lesion.

Treatment.—Treatments that we use may be divided into the following classes:

1. Postural drainage.
2. Bronchoscopy, drainage and local application through bronchoscope.
3. Pneumothorax.
4. Thoracotomy with releasing of adhe-

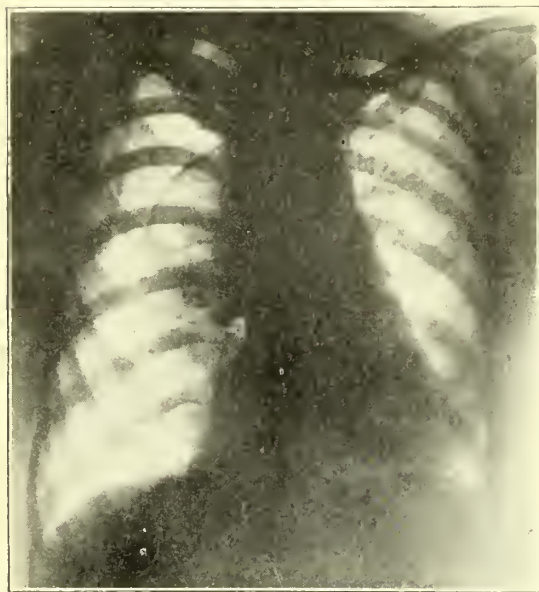


Fig. 4. Shows lung considerably collapsed by pneumothorax (with ceasing of cough and all symptoms). At the present writing, nine months later, patient is still being collapsed every three or four weeks for fear of a recurrence of cough.

sions plus compressing of the lung by sutures.

5. Lobectomy.

If the simple method suffices others are not used.

Postural drainage is a method that relieves a great many of the distressing symptoms in many cases, by allowing large quantities of discharge at one time. This of course leaves the patient free from symptoms for hours at a time, and occasionally is sufficient to give the patient symptomatic cure. But at best it is only a palliative method.

Bronchoscopy is a method used only by experts in that line and is not available in many instances. It is very uncomfortable to the patient, but the drainage produced in many instances through direct bronchoscopy is worthy of trial. It is also a great help in locating just which bronchus is discharging the pus.

Pneumothorax is one of the methods that sometimes brings dramatic relief, if there are no dense adhesions, by an even compression of the lung and compression of the cavities in such a way that they are unable to fill up with secretion. It should be tried in unilateral cases unless definite contraindications exist.

Thoracotomy should be done on unilateral

cases when palliative measures above described fail to give relief. This is done both for the purpose of exploration and of accomplishing a therapeutic benefit. The failure of relief obtained with artificial pneumothorax is often due to the presence of adhesions between the affected lobe and the chest wall. By opening the chest and severing the adhesions the bronchiectatic lobe will usually retract from the chest wall and the desired compression will be accomplished. Moreover the air in the pleural cavity can be renewed by subsequent injection and thus it will be possible to obtain whatever results may be expected from a pneumothorax alone. Additional compression of the lung can also be accomplished by suturing a flap of pleura and muscle around

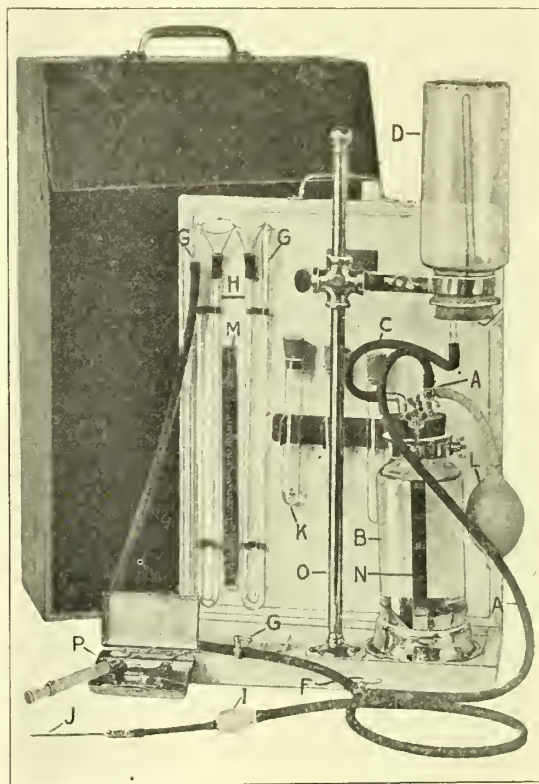


Fig. 5. Shows the Singer Portable Pneumothorax Apparatus. The important features are: (1) The two manometer tubes thirty inches in length, allowing for greater pressure. (2) The sliding scale between the two manometer tubes serving either side. The scale is marked—corrected for immediate calculation. (3) The two-way valve bulb attached to the upright bottle obviates the necessity of having large bottles, thus decreasing the weight of the apparatus. (4) The scale attached to the upright stand is an integral part of the base. (5) In case of breaking a bottle any 500 c.c. druggist's display bottle can be used and refilled in the base. (6) The rubber cork is fastened to the bottle with clamps so no leakage may occur. (7) The rack for test tubes carries all solutions necessary in the operation. (8) An attachment for the hypodermic case filled with a syringe and necessary needles, is a part of the apparatus. (9) The safety valve in the tube to the manometer prevents the manometer fluid from escaping when the patient coughs. (10) The extra manometer is always in readiness; this is a very definite advantage. (11) The entire apparatus on the stand represents the back of the carrying case. (12) The entire apparatus weighs only ten pounds; there are no expensive parts to renew. (Instrument made by Wm. A. Phillips Co., St. Louis, Mo.)

the isolated lobe. The subsequent contraction of the scar tissue apparently squeezes the lobe which is then compressed in much the same manner as with an artificial pneumothorax. In a recent case very marked improvement was obtained in this manner. The thoracotomy may be performed either by spreading the ribs after making an intercostal incision or by removing one or more ribs. If ribs are first removed additional compression can be secured by means of a special pad which can be worn to make pressure on the soft parts overlying the affected lobe.

All the above-mentioned procedures are to be regarded usually as only palliative. In most cases the only hope of complete relief lies in the extirpation of the diseased lobe. Lobectomy, however, is a dangerous operation and we feel that at the present time it should be restricted only to those cases in which the various palliative measures have been unsuccessfully tried. We feel also that it is indicated only in unilateral cases in fairly young subjects. We have had two complete lobectomies in our series and in a third case the first stage of lobectomy has been done. In one which was performed one year and four months ago the result has been ideal. A boy 17 years of age who had been entirely incapacitated for three years has been restored to apparently perfect health. In the second case death occurred on the sixth day after the resection because of a suppurative pericarditis. In performing lobectomy we feel that an operation of several stages is safer than one performed in a single stage. The operation is not to be undertaken lightly, but with improvements over present methods it seems probable that it can be made sufficiently safe to warrant its application to many more cases than seems justifiable at present.

CASE REPORTS

Case 1. S. M., age 17 years, male, grocer clerk. Admitted to Barnes' Hospital November 1, 1920. Had been bringing up large quantities of foul sputum for several years, and postural drainage treatment gave only moderate relief. Pneumothorax was done several times with only collapse on upper part of lung. Bronchiectatic area in the lower left lung showed no evidence of collapse. On November 6, 1920, the first stage of a lobectomy was done, the second was done November 3, 1920, and the third was done December 30, 1920. Patient made a perfect recovery with no sinus. At the present time he has gained considerable weight, has no cough, and is able to do his work. This case is one of the few cases in the whole world who has absolutely recovered.

Case 2. A. S., age 35, female; diagnosed bronchiectasis, May, 1920, following influenza pneumonia. In October, 1919, brought up large quantities of foul sputum and blood at various times; was unable to lie down for two and one-half years on account of the strangling cough which resulted. Patient weighed 85 pounds on beginning of pneumothorax

treatments. Pneumothorax was done on September 24, 1921, and sputum became less; after the third pneumothorax, cough ceased entirely. At the present writing patient has gained sixty pounds and is practically well. She has pneumothorax treatments every three or four weeks, to keep the lung collapsed.

BIBLIOGRAPHY

1. J. J. Singer: Tuberculosis Versus Influenza, American Review of Tuberculosis, Vol. 5, No. 10, December, 1921.

Metropolitan Bldg.

DISCUSSION

Dr. M. F. Arbuckle, St. Louis: Bronchoscopy is an aid of considerable importance in the diagnosis and local treatment of bronchiectasis. The bronchoscopic findings are rather characteristic. There is a sickening sweetish odor very pronounced; the hypopharynx and the glottis are covered with thick yellow pus, which has the consistency of glue, and sticks tightly to the mucous membrane. Inside the larynx and trachea the pus is thinner and usually lies in the dependent portion, that is, the posterior wall, when the patient lies on his back.

The examination is done with local anesthesia. Usually when the instrument is passed through the larynx and trachea there is considerable pus coughed out through the tube. The pus can easily be traced to the lobe or lobes involved and it can be recognized that the uninvolved lobes do not contain pus and are not a part of the inflammatory process. The appearance of the bronchi of the involved lobes is that of a chronic inflammation, with more or less thickening, which varies in different cases.

If the patient is asked to cough, quantities of pus can be coughed into the tube.

The technique which we follow for bronchoscopic examination of these cases is that of Jackson, and we also use Lynah's spiral tubes. In addition to cocaine within the larynx we use twilight sleep. The discomfort in some cases is considerable, but in the great majority of instances it is negligible. In fact, some patients did not realize anything had been done as far as any suffering at the time of the operation was concerned.

In one case of bronchial asthma of twelve years' standing the dilatation of the bronchi was considerable and there was a quantity of pus in the larger branch of the lower lobe on both sides. The pus was aspirated by Lynah's tube and guaiacol in oil was injected, after which asthma was diminished so that he requested further treatment which was given in about a week. The asthma disappeared entirely and he left the hospital apparently relieved.

The amount of sputum and the odor are diminished for a few days at least. One patient of whom Dr. Singer has a slide, felt that he was very markedly relieved. In this case there was a terrific odor and several cups of sputum each day. The amount of sputum was diminished very markedly and the odor was much less. This man left the hospital and resumed his occupation. (This man died several months later from lobar pneumonia.)

DISEASE OF THE URETHRA AND PROSTATE AS A CAUSE OF HEMATURIA*

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The subject of hematuria of the urogenital tract is a very important one and the presence of blood, microscopical or macroscopical, im-

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mediately calls for an investigation as to the source or cause of bleeding. At the present time the urologist is perfectly equipped with means at his command definitely to locate the trouble and in many cases to eradicate it. In hematuria from the anterior urethra, blood is always present at the meatus. A bleeding in the prostatic urethra can regurgitate into the bladder and fill the bladder, or, if the sphincter externus is lax, can show itself at the meatus. In our experience there is always present at the meatus some blood if there is bleeding in the prostatic urethra. Examination of the urine can show us many things and be of great assistance to us in making a diagnosis.

The Microscopical Condition of the Urine.—First, if we find blood corpuscles in a light, clear, freshly voided urine, and if this stands, you obtain a red coloring of sediment and urine becomes clear. Second, the red, bloody urine voided stays red, and the red in it does not precipitate. You find blood corpuscles and shrunken and degenerated forms in this sort of urine; also if there is pus present in the urine that alone can be of great significance in making a diagnosis.

A hematuria from the urethra and prostate must be divided into groups which will give us a working basis:

First, hematuria due to an infection of urethra of which gonorrhea is the most prevalent.

Second, hematuria due to injury and trauma to urethra; also through the use of a drug or drugs which destroy the mucosa and cause sloughing of the mucosa and deeper structures.

Third, hematuria due to tumors of the urethra.

Fourth, hematuria in strictures of the urethra.

Fifth, hyperemic conditions of the veru and inflammatory conditions of the veru.

Sixth, hematuria due to trauma to the prostate.

Seventh, inflammation and abscesses of the prostate, including tuberculosis of the prostate.

Eight, hematuria in benign adenomata of prostate or senile hypertrophy of the prostate.

Ninth, stone in the prostate.

Tenth, carcinoma and sarcoma of the prostate.

Eleventh, seminal vesiculitis, trauma of seminal vesicles, tuberculosis of the vesicles.

Twelfth, syphilis of the vesicles and malignancy of the vesicles.

1. In acute infections of the anterior urethra, such as in acute gonorrheal urethritis, we have a swollen meatus and a very hyperemic and swollen mucosa of urethra. If injections are made during this period, you have considerable bleeding. During this stage, if the pa-

tient has an erection (so-called chordee), with urethra inflamed and pus exuding, the mucosa will bleed and patient will have a hematuria. Blood will always be present at the meatus in these cases of anterior urethritis. Also in chronic posterior urethritis, if an injection is made into the posterior urethra and the sphincter externus is not lax, bleeding will take place and patient will have considerable blood present.

2. *Trauma of Urethra.*—If sounds or metallic instruments or even soft instruments are roughly and carelessly used, damage can be done to the mucosa, and patient will have hematuria.

If the injury is in the posterior urethra, there will be considerable blood present at the meatus accompanying the hematuria. The injection of strong drugs such as silver nitrate and anything that acts as a cauterant to the mucosa will cause hematuria. Mechanical injuries to the penis proper can cause hematuria. Direct injury or a blow or falling astride can cause rupture of urethra in some instances with a severe hemorrhage.

3. Papilloma of the urethra and polyp and urethral caruncle in women can cause a hematuria.

4. You may have hematuria following dilatation of strictures; also have blood present at the meatus if care is not exercised in using instruments.

5. The various pathological conditions of the veru can cause hematuria. Special emphasis should be placed on a hematuria due to these conditions, as it is very prevalent. (1) A large veru utricule and prostatic sinuses enormously dilated, extending from bottom up. Clinically, the symptoms are premature ejaculation due to excessive coitus. (2) Veru with multiple polypi or papillomata. Clinically shows symptoms of frequency and tenesmus. (3) Large ulcer, veru is much enlarged. Shows symptoms of painful micturition day and night. (4) A veru distorted and hypertrophied shows symptoms of urinary distress and sexual neuroses. (5) A veru enlarged, sinuses dilated, post montan floor trabeculated. Clinically shows symptoms of pain in perineum. This is usually following a posterior gonorrhea. All of these conditions of veru can and do cause hematuria, as the veru is hyperemic and inflamed in all these conditions and bleeds easily.

6. Violent and brisk massage of healthy or diseased prostate can cause hematuria.

7. *Abscess of the Prostate.*—When an abscess of the prostate without hypertrophy occurs, you will find the prostate honeycombed or one large abscess of the gland; prostatic massage or emptying of these abscesses in urethra by straining on urination will cause bleed-

ing and in many instances you will find considerable hematuria. This hematuria may be at the beginning of micturition, during the micturition, or at the termination of micturition. These abscesses of the prostate when not operated frequently rupture or empty in the posterior urethra and patient will pass pus and red blood when he voids.

8. Benign adenomata are always present in old men who have a general arteriosclerosis accompanied by hyperemia of the prostate. Varicosities are present in those prostates. These patients usually present themselves following an error in diet (highly spiced food), catching cold, injuries such as brisk massage of prostate or injury to the urethra and prostate in passing instruments. Also, these cases come to us following retention closely associated with instrumentation. We can call attention to bleeding in these cases to completely emptying the bladder *ex-vacuo*. This is closely associated with prostate obstructing urination and the passing of the catheter and emptying bladder completely. In tuberculosis of the prostate the hematuria present is usually due to tenesmus and there are usually a few drops of blood present following urination. Patient does not complain of very severe pain in the prostatic region and suffers most at micturition.

9. *Stone in the Prostate*.—I have seen two cases of stone in the prostate. These cases had a previous operation, enucleation of the prostate, and these stones were imbedded in the prostatic pouch. Examination per rectum showed hard nodule or mass in prostate. Cystoscopic examination reveals stones in these patients; had a hematuria and if they had not been cystoscoped, a mistaken diagnosis could have been made for carcinoma of the prostate.

10. *Carcinoma of the Prostate*.—The first and indicative sign of a carcinoma of the prostate is a hematuria. There is no pain attendant with the bleeding. Bleeding is usually of short duration, but can be at the beginning of micturition, in the entire urine; or at the termination of urination. It is possibly first. Rectum discloses a very hard prostate and sometimes nodular. I do not want to go into a prolonged discussion of carcinoma of the prostate, but in every case of carcinoma of the prostate sooner or later there is a hematuria present. Sarcoma of prostate is very rare.

11. *Hematuria in Seminal Vesiculitis*.—Blood is present in the seminal discharge or in the urine during the course of inflammatory conditions of vesicles.

Blood in the seminal discharge or in the urine during the course of an acute inflammatory condition of the seminal vesicles is sufficiently common to cause special interest.

12. Tuberculosis, syphilis and malignancy are given as possible etiological factors in a few cases of hemorrhage of the vesicles. One of two investigators gives a source of some bleeding to be from the testicles and epididymis. The present belief of a seminal discharge that is blood stained occurring during a course of acute urethritis is that the bleeding is usually from the prostatic urethra or vesicle. Blood can be present in the urine or in the seminal discharge from overindulgence in sexual intercourse. Probably emptying of distended and inflamed vesicles can cause bleeding. Such bleeding is similar to the hemorrhage which occasionally occurs on too suddenly emptying the bladder.

In closing, I wish to call attention to the fact that hematuria in diseases of urethra when blood is present at the meatus urethra always calls for an immediate examination of the patient.

The urologist is perfectly equipped to make this examination and find out the cause of infection and give aid to the patient. General practitioners should co-operate with the urologist in obtaining good results for their patients, and therefore they should not hesitate to call in the urologist to be of whatever assistance that is possible in making a correct diagnosis.

327 Lathrop Bldg.

INFECTION AS A CAUSE OF HEMATURIA*

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It has been clearly and repeatedly demonstrated that the trio—stone, tuberculosis and tumor—account for the vast majority of hematurias.

Should we be able wholly to accept the recent work of Rosenow¹ in practically establishing the existence of a stone-forming streptococcus, stone would be transferred to the realm of infection.

Obviously enough tuberculosis is an infection, although because of the enormity of the subject it is usually considered apart from other infections.

In considering infections that cause hemorrhage in some part of the urinary tract sufficient in quantity to produce bloody urine and to be noted by the patient, we must first study those infections that are within the urogenital tract. These we may look at as the commoner ones on the one hand and the less common ones on the other hand.

Consideration must also be given to infections and to foci adjacent to or at a distance from the urinary system. This is a subject that has only been given proper emphasis dur-

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ing the past decade. Under this head must be included a large number of lesions produced by various microorganisms. These the kidneys are called upon to excrete, either as living organisms or their endotoxins, and either or both in passing through may damage the kidney to such an extent as to produce hemorrhage. The hemorrhage may in one case be due to congestion or inflammation or in another case to nephritis.

We must also review the acute infectious diseases as causative factors in hematuria. As acute fevers they may have no interest for the Urologist, but as a starting point for many a chronic lesion we who would be wise would look into them. Hence a glance at such diseases as smallpox, yellow fever, influenza and typhoid fever is in perfect accord with our theme of the moment.

We must also draw attention to a class of lesions produced by parasitic invasion of the body which may produce kidney hemorrhage. The most noteworthy of these are the rarer tenia infections, malaria, Bilharzia and the spirochete of Schaudin.

With the above outline in mind let us proceed at once to a more detailed consideration of the subject.

Infections Within the Genito-Urinary Tract.

—1. Commoner Infections. Pyelitis is one of the commonest of kidney infections. It not infrequently produces bleeding. Frank Kidd² of London, in writing on pyelitis in his recent book, "Common Infections of the Kidneys," says: "Do not forget that hematuria is a common symptom of pyelitis and occurred in 49 of these cases. It may occur as a profuse hematuria at the onset of an acute case; as the passage of a few drops of blood at the end of micturition at the onset of an acute case; as the passage of clots, with clot colic and retention; and rarely as a profuse or persistent bleeding that endangers life in chronic gonococcal cases, and in cases that resemble purpura." Again, on page 23, he says: "I do not think it has been sufficiently recognized that a simple uncomplicated pyelitis is one of the commonest causes of profuse hematuria. In the majority of instances the bleeding appeared to come from the ruptured blood vessels in the engorged and swollen kidney. In some cases it appeared to partake of the nature of a purpura and arose from a submucous hemorrhage in the mucous membrane of the bladder or kidney. In two chronic cases of gonococcal pyelitis the hematuria was profuse, long lasting and dangerous to life, and arose as a kind of secondary hemorrhage by ulceration of areas of inflammation in the mucous membrane of the collecting tubules into dilated veins in the neighborhood."

On page 63 Kidd says: "In other words,

pyelitis is one of the commonest causes of hematuria."

I have had personal experience with several cases of pyelitis that produced bleeding.

Braasch³ is of the opinion that many cases of obscure bleeding are due to "chronic insidious infection about the papillæ."

The pyelitis of pregnancy may sometimes be the cause of kidney hemorrhage.

Pyelonephritis is nothing more nor less than a pyelitis that has extended into the substance of the kidney. This disease often produces hematuria. I have a case that illustrates this:

A boy of 14 years was discovered to have pus and blood with pus casts in his urine upon being examined for life insurance. He had no complaints although his mother noticed that he did not care to play as much as formerly and appeared to be a little short of breath. She also noticed that his face had a slightly edematous appearance. There was no obtainable history of a recent illness, the last illness being a scarlet fever several years before. On examination he was found to have an irritable heart with extra systoles and two infected finger nails (paronychia) from which were isolated a staphylococcus. Culture from the urine showed a streptococcus in addition to finding blood, pus and casts from the separate kidney specimens. There has been no fever. Terminal blood has been an intermittent symptom. His tonsils were removed eight months ago. No other focus besides these infected fingers can be found. He is still under treatment and is not making satisfactory progress.

It is rare for a pyonephrosis to bleed, and when it does there are other symptoms that overshadow this symptom.

Tuberculosis is such an enormous subject that I hesitate to include it, but in a brief way there are some phases of it that cannot be too often emphasized. Tuberculosis of the kidney has a ghastly way of producing a sudden, moderately severe, hemorrhage which frightens the patient terribly, and then no further symptoms for from two to five years. Perhaps again there will be another terrifying hemorrhage.

Tuberculosis of the bladder produces a terminal hematuria, but the fearful dysuria far overshadows the blood. Genital tuberculosis not infrequently produces hematuria because of invasion of the prostate, the trigone, the seminal vesicles or the posterior urethra.

One thing that should always be uppermost in the mind when dealing with tuberculosis, and that is that the hemorrhage is one of the earliest symptoms.

Perinephritic abscess but rarely causes bleeding. I have one case to record in which hematuria was a rather confusing symptom, but in this case the bleeding resulted from congestion.

(2) The Rarer Infections. The solitary ulcer of the bladder described by Hunner as occurring in young females may be a source of bleeding. The hemorrhage produced by

these cases is of small amount, but is still enough to be noted by the patient.

A case of mine may serve to illustrate this discussion.

A married woman of 38 years was referred for the relief of an attack of severe pain over the bladder, accompanied by dysuria and sometimes blood. She had been married for 21 years, never pregnant; eight years ago she began to have these bladder attacks following sexual relations. At first they only lasted a day or two, but latterly they had lasted for weeks. The pain was always worse when the bladder was full. Cystoscopy revealed an ulcer in the right anterior portion of the bladder low down enough to be irritated by the action of the sphincter fibres. This particular ulcer had formed between the branches of a rather good-sized blood vessel so that the source of the bleeding was quite apparent.

Renal infarction due to endocarditis is a cause of urinary hemorrhage that is quite unusual, but in these cases the endocarditis overshadows the hematuria.

Seminal vesiculitis of sufficient virulency to produce blood in the urine, I have encountered twice. To find blood-stained seminal fluid is not uncommon, but to have sufficient blood from such a source to result in a true hematuria is quite rare indeed.

Infection or Foci Adjacent to or at a Distance From the Urinary Tract.—That distant foci and adjacent infection may produce severe urinary hemorrhage, usually renal, is now pretty well established. A case at the Bell Memorial Hospital first called my attention to the appendix as a factor in hematuria.

A man of 25 complained of pain in the right lower quadrant of the abdomen with pain on urination accompanied by hematuria. After a careful urological examination, it was decided that his appendix was at fault. At operation, the appendix was found matted down over the ureter, the ureter also being involved in the inflammatory process. Operation cured this patient.

Dr. Kellog Speed,⁴ in *Surgical Clinics of Chicago*, for 1917, reports 7 appendix cases that had blood in the urine. In all of these cases the appendix was either adherent to the ureter or involved it in the inflammatory process. Four other similar cases have been reported in the literature.

Tuberculosis of the intestine, notably a loop of intestine that lies in close proximity to the bladder, has been known to cause bloody urine.

Pelvic abscess does sometimes cause hematuria because of its intimate relation to the bladder.

Pyosalpinx for the same reason may produce congestion of sufficient severity that blood may appear in the urine.

Pericystitis and pericystic abscess are rare, but sometimes cause urinary hemorrhage originating in most instances from the bladder.

Multiple septic infarcts, or the so-called acute hematogenous infection of the kidney as

described by Brewer and called sometimes Brewer kidney, causes hematuria not infrequently. In this connection it is well to recall that the coccus group of organisms have an affinity for the cortex of the kidney, while the colon group appear to have a predilection for the pelvis of the kidney.

In the Brewer kidney the shower of septic material which comes from the blood-stream sometimes produces such a severe grade of congestion that it is not a matter to be wondered at that blood sometimes appears in the urine.

Dysentery has been noted as a cause of hematuria.

The acute fevers present an interesting study in connection with hematuria. If careful observation be made it will be found that in all acute fevers, at some period in the fever, the kidney is irritated sufficiently so that casts and albumin are found in the urine. It also frequently happens that bacteria, red blood cells and pus appear in the urine, showing that there is a degree of pyelitis or pyelonephritis produced by the acute fevers. We are interested as urologists because on this basis we may explain many of the later findings.

Smallpox not infrequently causes hematuria. In the milder cases it is rare. In the severe epidemics blood in the urine is common.

Yellow fever is a disease we are not so much concerned about in this latitude, but it does frequently cause kidney hemorrhage.

Typhoid fever may produce hematuria.

During the influenza epidemic there were many cases of hematuria from that cause. B. Goldberg⁵ collected a number of interesting cases of hematuria due to influenza.

Other acute fevers may rarely be the cause of urinary hemorrhage.

Parasitic Infections.—In a paper on Malarial Hematuria, Bennett⁶ says that malarial hematuria cannot be called a distinct fever and is found about the rivers and swamps of the South and is unknown north of latitude 35 degrees. He further points out that there may be a cessation of the hematuria which will begin following or with the next paroxysm.

There formerly was much discussion as to whether or not the quinin produced the hematuria, but it is now quite well established that it is due to the disease. It may sometimes be in part at least a hemoglobinuria.

In 1903 Boston⁷ reported two cases of parasitic hematuria. In the first case he sent the specimen to Dr. Stiles of Washington, who reported it as a trichocephalus dispar. The second case proved to be due to the tenia echinococcus. As is well known, the latter disease is rare in this country, but most common in Iceland, where it is estimated that one-sixth of the population is infected.

"Bilharziosis," to quote Young,⁸ "or endemic hematuria, is an infection with one of the trematodes or flukeworms, the *Schistosomum hematobium*, and is characterized primarily by hematuria and other symptoms of cystitis or proctitis, or by both. The first discovery of this parasite as a cause of endemic hematuria was made by Bilharz in 1851. The disease has long been recognized in Egypt, the French army surgeons having described it in 1800. Ruffer discovered eggs in mummies that dated back at least to 1000 B. C. It is prevalent in other parts of Africa. It is also met with in Asia, India, Syria and Mesopotamia. In Egypt, according to post-mortems, 50 per cent. of the population are infected. The symptoms of hematuria are caused by the eggs of this worm being deposited in the walls of the bladder and ulcerating through and being excreted with the urine." A number of cases have been reported in this country. I have seen one, in a man who had lived in Africa and who knew he was infected. Eggs could be found in his urine from time to time, although he suffered no great inconvenience.

Paroxysmal hemoglobinuria is of interest to us because it must be distinguished from true hematuria and further in that it always occurs in syphilitics.

A man of 40 years, a syphilitic who has an attack of paroxysmal hemoglobinuria every time he gets his feet wet or gets chilled. He came for the relief of blood in his urine. He knows about his disease and the sudden blood colored urine no longer frightens him. Treatment for his syphilis has greatly diminished the number of attacks. He has not had an attack now for more than a year.

Paroxysmal hemoglobinuria is dependent upon a change in the blood chemistry produced by syphilis. Experiment has proven that during the attacks red blood cells are hemolyzed and excreted in the urine as hemoglobin.

We may learn from this brief survey of a limited portion of the vast number of causes of hematuria how diverse may be the cause of blood in the urine. We have our women so educated today that a lump in the breast means cancer. As urologists we must educate the public so that every person will know that hematuria is a danger signal and that furthermore the danger bears no relation to the size of the red flag.

We may see from this study that after all there are only three basic causes for hematuria, namely, trauma, infection and new growth.

BIBLIOGRAPHY

1. Rosenow: Recent paper read before the Kansas City Academy of Medicine.
2. Frank Kidd: Common Infections of the Kidney, pages 23 and 63.
3. Braasch: Discussion of Kretschmer's Paper on Hematuria. Trans. Section on Genito-Urinary Diseases, American Medical Assn., 1916, page 236.

4. Kellogg Speed: Surgical Clinics of Chicago for 1917.
5. B. Goldberg: Deutsch Med. Wochenschrift, 46, 604, May 27, 1920.
6. J. D. Bennett: Journal Fla. Medical Assn., Vol. 2, No. 7, page 203, January, 1916.
7. L. Napoleon Boston: Two Examples of Parasitic Hematuria. Am. Medicine, Jan. 3, 1903, 5, 20.
8. E. L. Young, Jr.: Modern Urology, Cabot, page 483.

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DISCUSSION

Dr. Clinton K. Smith, Kansas City: Inasmuch as this symposium was undertaken by the Kansas City Urological Society, I feel, as secretary of that organization, that an apology is due this Society for those members who fell by the wayside and did not appear to present their subjects.

The bladder lesions which Dr. Henderson was to present is one of the most important phases of hematuria. Probably papilloma of the bladder is most frequently the cause of hematuria where vicious lesions are concerned. It is one of the easiest lesions on which to fasten a diagnosis in hematuria. There are a great many obscure cases of hematuria where, after going over the evidence in the case, we are not able to designate the cause. I think that probably disease of the lower ureter is a cause of hematuria in a good many of these obscure cases.

Since I have been doing more ureterograms I have been able more often to discover the cause in these obscure cases.

It would seem after all that has been presented and said on this subject that very little of further interest could be introduced. But just as long as cases of hematuria are casually brushed aside as of no importance, I think that we have not arrived at the time when we can quit talking about it.

As has been brought out in this symposium, the three principal causes of hematuria are all very serious lesions. I think that we are justified in saying that with every patient presenting hematuria as a symptom, before the case is dismissed, it should be determined by somebody that the hematuria is not caused by one of these vicious lesions.

Dr. Neil S. Moore: The subject of hematuria is a very important and interesting one, and I want to go on record as having enjoyed this symposium very much.

I believe the key to success lies in a complete examination of the patient where hematuria exists. There are a number of signs and symptoms that resemble each other, and yet the hemorrhage is from an entirely different source. For instance, the hematuria at the end of urination. I have seen a number of infections of the bladder result in infection of the posterior urethra, which were accompanied by the passing of a few drops of blood at the end of urination. Other cases with practically the same signs and symptoms where the hemorrhage took origin from a papilloma of the bladder.

I have a physician patient who gives a history of having had hematuria for several years, principally at the end of urination. His urine contains some pus and one would think that, with the number of symptoms he gives with it, he simply had an infection probably higher up and a posterior urethritis, and when he pressed out the last few drops of urine a little blood escaped. As a matter of fact, we found a papilloma of the bladder undergoing carcinomatous changes.

Two other cases I recall whose symptoms were similar, in which I am particularly interested because they have continued over so many years—one twenty-five, another thirty years. These two cases had practically the same symptoms and signs so far as outward examination of the urine showed, such as considerable pus, blood, etc., yet they had entirely different lesions. One had a chronic pye-

lonephritis and the other an inoperable carcinoma of the bladder.

I was very glad to hear Dr. Ockerblad bring out the point that hematuria may accompany simple pyelitis. I do not think it has been sufficiently impressed upon the profession in the past. Complete examination of the uro-genital system is necessary to determine its origin. We very often find a marked hematuria accompanying a pyelitis, and with proper treatment the hematuria and pyelitis both clear up.

THE PROBLEM OF THE MODERATELY HYPERTROPHIED PROSTATE*

H. McCLURE YOUNG, M.D.

ST. LOUIS

The patient with a moderate degree of prostatic obstruction presenting less than half an ounce of residual urine, sometimes even none at all, will generally desire conservative measures for his relief where these are possible. He will often be a man in the neighborhood of 50 and may be considerably younger. His only complaint is that he has to get up so often at night. If, on examination, such a man is found to have a prostate which feels practically normal by rectal touch, and especially

pone a prostatectomy for from five to ten years, must be allowed a prominent position in prostatic surgery. Of course, the surgeon who operates radically on all his cases may be expected to present a somewhat lower mortality in prostatectomy than the surgeon who treats his early cases conservatively, reserving the radical operation for cases more advanced, and necessarily poorer surgical risks. But it is the poor surgical risks that are most in need of operation, and the fact that early cases are good surgical risks is not a valid reason for operating upon them.

It may be maintained that we should take these prostates out early in order to prevent their becoming bad surgical risks, and within limits this of course is true, but if we can relieve the obstruction by a conservative procedure we accomplish the same purpose. Many conservative methods of dealing with prostatic



Fig. 1.

Fig. 2.

Fig. 1. Internal sphincter margin as seen from the deep urethra by means of the Buerger Universal Urethroscope.

Fig. 2. A different type of sphincter margin showing some thickening of the mucosa and elevation of the floor.

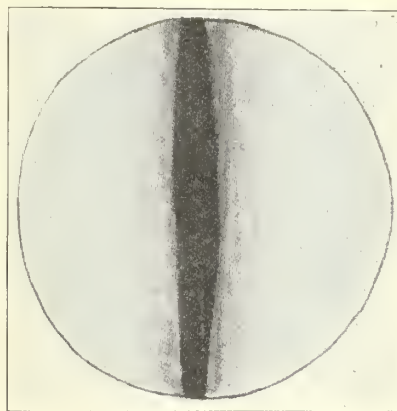


Fig. 3.

Fig. 3. Sphincter margin showing hypertrophy of the two lateral lobes.

if he is still sexually active, the surgeon will be loath to recommend a prostatectomy. But the cystoscope may show a bladder in an advanced state of trabeculation coupled with a notch in the sphincter margin above as well as notches below to each side. The irrigating endoscope may show also the typical smooth columnar appearance of the two hypertrophied lateral lobes with the median lobe set like a boulder between them at the vesical orifice. What operation short of prostatectomy can be advanced as offering a fair prospect of relief? If prostatectomy can be postponed until the patient has passed his sixtieth year it is desirable to do so, provided always that his chance of surviving his prostatectomy is not seriously compromised thereby.

Conservative operations, therefore, though not offering a radical cure, if they can post-

obstruction have been proposed and most of these have failed to establish themselves. Simple incision with a galvano-cautery is not effective. Some portion of the prostate must be removed. It was to overcome this deficiency in the prostatic incisors then in vogue that I devised a galvano-cautery curette in 1913. This proved a very delicate instrument, however, and I found also that hemorrhage could occur after its use. More recently my attention has been called to the work of Luys in Paris, who now uses electrical coagulation with the high-frequency current. He calls his operation a "forage" of the prostate, and claims that a high-frequency coagulation prevents hemorrhage, whereas burning with a galvano-cautery does not. The punch of Dr. H. H. Young will bite out a considerable piece of prostatic tissue, but its use is very likely to be followed by hemorrhage and this may be even of alarming proportion. To overcome this difficulty Caulk has added a galvano-

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

cautery to the Young punch with the idea of sealing the blood vessels. A method which I have been using recently is to catch the offending prostatic lobes in the fenestrum of a Young punch and then needle them with a high-frequency electrode. This coagulates the tissues, which may then be bitten out with the blade of the punch, and the subsequent bleeding will be inconsiderable.

The diagnosis in all cases of moderate pros-



Fig. 4.

Fig. 4. Hypertrophy of the two lateral and median lobes.

tatic obstruction is best made with the endoscope. Cystoscopic examination should of course be made, but a straight irrigating endoscope enables us to see the urethral aspect of the prostate not at one point only, but all the way from the vesical outlet to the anterior limits of the prostatic urethra. It is this examination with the endoscope which I should like particularly to emphasize. I have described the technique elsewhere as follows:

"The technique of examination is very simple. A straight direct-vision irrigating endoscope is introduced into the bladder. A beaked instrument or one presenting a lateral view will not serve the purpose. Irrigation is established and the instrument is then slowly withdrawn. The normal vesical orifice will appear as a circular hole which opens and shuts with the establishment and interruption of the irrigating stream. In sclerotic and inflammatory conditions it will appear more or less deformed, sometimes triangular and sometimes flattened below like an arched doorway. Under normal conditions the entire deep urethra as far forward as the verumontanum will present the same circular opening which tends to close over the end of the instrument. The mucous membrane appears soft and pliable and the channel opens up symmetrically when the irrigating fluid is allowed to flow. Where inflammatory processes are present, the prostatic lobes may give a slight convexity to the lateral walls of the urethra, but this convexity

is not as a rule fixed, but yields to the pressure of the irrigating fluid. The mucous membrane still appears pliable, and the entire lumen of the urethral canal remains visible in a single endoscopic field. This is a picture altogether different from the firm rigidity observed in cases of true hypertrophy. Here we find the urethral walls rigid and smooth. The mucous membrane no longer falls in little plications over the end of the urethroscope, but the urethral canal widens or contracts in response to varying degrees of pressure by the irrigating fluid, as if masses of polished stone had been thrust aside and permitted then to fall back into their original position. Indeed, the entire prostatic urethra may present the appearance of a narrow vertical slit between two pink onyx columns. The height of this slit has to be estimated by moving the tip of the endoscope up and down so as to bring first the floor and then the roof of the urethra into view, for they are widely separated. Sometimes the canal is straight and sometimes tortuous. Sometimes a middle lobe is present on the floor at the vesical orifice, but it does not extend down very far into the urethra. Both lateral lobes are, in my experience, always involved, but one of them may have encroached upon the other, giving the urethral slit above described a crescentic shape.

Having determined the nature and extent of the obstruction, we are in a position to determine quite accurately whether or not a conservative operation is likely to give relief. I have been using the Young punch in connection with the high-frequency current for a



Fig. 5.

Fig. 5. A large median lobe projecting into the bladder.

period of about six months. My first cases I merely cauterized, allowing the burned tissue to slough away as Luys does in his forage. Retention of urine during the first weeks after this procedure determined me to cut out the burned tissue thereafter, and since then I have had no trouble. Hypertrophies of the lateral

lobes as well as of the middle lobe may be treated in this way. How long relief is going to last cannot be determined at the end of six months, but up to date results have been satisfactory. Patients who used to get up eight to twelve times at night now get up one to three times. All, of course, were cases of moderate hypertrophy. Two of them had already had



Fig. 6.

Fig. 6. Method of fulgurating minor prostatic obstructions.

paralytic strokes. The pictures best illustrate the endoscope findings on which the operative procedure is based.

624 University Club Building.

DISCUSSION

Dr. Julius Frischer, Kansas City: This subject of palliative measures for taking care of these moderately hypertrophied prostates is very interesting. These patients do not come to us with a complete retention but have only a four or five ounce residual. In some instances with only a median bar involvement.

I was fortunate enough to see Luys of France at his work of *Le Forage De La Prostate*. His method was similar to that of Kelley of Baltimore, in so much as he used an endoscope, placed the patient in an extreme Trendelenberg position, using a suction pump, and he had an absolutely dry field without any urine in his field. He used the monopolar current. He claimed at that time that if he had a dry field he was able to have more intense burn with his electrocoagulation apparatus.

I have done considerable electrocoagulation work in these prostatic cases and the work has been very satisfactory, especially in the prostatic cases in which the prostates are very small and in the median bar obstruction. If you have a very large prostate the work will be unsuccessful.

Work was done in the office. Luys of France also does his work in his office. I used novocain anesthesia and used a urethrocystoscope of Berger. The bladder is distended with water. You can see what you are doing and we use our electrocoagulation, D'Arsonval current.

We do not try to do too much at one time. In fact, we have our patients come in to a number of sittings. The intervals at which we electrocoagulate is approximately ten days.

One feature which may cause us considerable trouble is the fact that some of these older men

have a urethral fever following the passing of these instruments and in using electrocoagulation.

I have also found patients that were not able to withstand electrocoagulation without an anesthetic. Where you have a small prostate and a small residual of two or three ounces, I think it is a very good method.

Dr. Clinton K. Smith, Kansas City: I think Dr. Young has graphically shown the importance of cystoscopic study of cases of prostatic hypertrophy. This method which he has described of treating these cases appeals to a certain class of patients who otherwise would not accept operative treatment—those patients who do not have enough disturbance that they feel justified in submitting to a radical operation, but yet desire relief from their symptoms.

MEDICAL TREATMENT OF GASTRIC ULCER*

JAMES J. TYREE, M.D.

JOPLIN

It is not my intention in this paper to describe a new treatment for gastric ulcer but to emphasize the ease with which the present treatment may be applied, and to urge the physician to use just a little more caution in making a diagnosis on gastric conditions. The very fact that one of the principal diagnostic points of gastric ulcer is a history of periodical attacks lasting years, is proof positive that most of our stomach ulcer cases are not diagnosed as soon as they should be.

Ulcer of the stomach is a much more common condition than many of us are prone to think, at least gastric hyperacidity is, but whether or not there is any difference in the two conditions I do not wish to take up at this time. Practically all gastric disturbances of chronic nature are hyperacidity or ulcer and not until they are treated as such will they be permanently cured.

The treatment for gastric ulcer is purely medical. I will grant you that a few of the complications of ulcer are remedied only by operation—namely, organic obstruction, perforation and repeated hemorrhage, but gastric ulcer itself is a condition to be cured by medical measures. Surgical intervention has cured ulcer of the stomach in a number of instances because it has hurried the emptying time of the stomach, since it is only where free hydrochloric acid is held over a period of time that it does damage, as we do not find peptic ulcers occurring below the duodenal cap.

Before taking up the treatment I wish to give brief mention of the chief diagnostic points, the most dependable of which are found in the history. Of first importance is the history of attacks of gastric discomfort occurring periodically over a space of years. One cannot look specifically for the symptom of

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

pain as the patient may not describe it as such. Discomfort, yes, they will all have that. It has been described as "burning," "heart burn," "needle pricks," "inward fever," "heavy feeling," "gone feeling," "sour stomach" or just pain. As a rule the patient belches sour fluid and gas, will have pyrosis and at times may vomit quantities of extremely sour fluid. Any of these complaints may be relieved for a few minutes by taking food. The patient feels fairly well at breakfast time, gradually gets worse during the day, being relieved temporarily at each meal, until the middle of the night when the greatest discomfort is usually experienced. At first this discomfort may be manifested only by the patient dreaming excessively. Ninety per cent. of the last hundred cases that I have treated gave a history of griping in the intestines which preceded their stomach trouble several months. If this is a universal finding it may be of importance as a warning signal and may mean that hyperacidity precedes the ulcer.

Physical examination reveals in a small percentage of cases tenderness in the epigastrium, although the patient is more likely to have tenderness over the appendix, so too much credence cannot be placed on this finding.

X-Ray.—I do not feel it so necessary to fluoroscope my stomach cases now as I did three years ago. The percentage of cases which show positive findings with a barium meal is too small. Admitted that 90 per cent. of cases showing positive X-ray findings prove at operations to have ulcer so that, if the X-ray says ulcer there is not much room for doubt. But it is to that class of patients who have typical ulcer histories but show nothing abnormal when rayed to which I refer when I say experience has caused me to minimize the effectiveness of the fluoroscope in diagnosing a stomach ulcer. It should demonstrate pyloric obstruction and will if the obstruction is an organic one, but as Sippey¹ states, eighty to ninety per cent. of the cases of pyloric obstruction are spasmodic and the taking of barium may temporarily relieve the spasm.

Gastric Analysis.—It is hardly necessary for me to go into the work that has been done by Reyfuss and Hawk on fractional gastric analysis any more than to say that they have restored lost faith in an important laboratory procedure. The important findings in the gastric contents are: (1) High total acidity; (2) high free HCl; (3) four to twelve hour retention; (4) occult blood.

Sixty-eight per cent. of my cases have shown a hyperacidity; this is 18 per cent. higher than is generally given.^{2 3} But I believe that gastric ulcer cases show higher acidity on certain days just as their symptoms are more pronounced on certain days and this higher per-

centage can be demonstrated if several tests are made on different days. Five of my cases have shown a normal acidity at the first three aspirations, only to show a hyperacidity the beginning of the third week of treatment.

Four to twelve hour retention of food is significant of pyloric spasm; longer than that, of organic obstruction.

Occult blood found in the fasting stomach is an important sign. Hemorrhage, hematemesis, cachexia, blood changes, may or may not be present. These findings merely serve to fortify your diagnosis; if they are absent, however, you must not be misled.

Treatment.—Before treating any disease we attempt to find the cause, but when we do find one cause we are forced to look for the cause of that and so on. There are several conditions which exist in ulcer cases which if not really the cause, at least hinder recovery so these are looked for and removed. Such as alveolar abscesses, chronic appendix, pyorrhea, etc.

In treating gastric ulcer I have followed as closely as possible the plan advanced by Sippy, which in brief, is alkalization of the stomach contents. Sippy maintains⁴ that the reason an ulcer fails to heal is that there is present in the stomach free HCl in abnormal amounts which causes devitalization of tissue, and with this in mind he reduces that acidity in order to bring about a cure by giving alkalies, namely, calcined magnesias, calcium carbonate and sodium bicarbonate.

The patient should be put in a hospital. Hospitalization is quite important as it takes the cares of the home off the patient's mind and enables the routine to be better carried out. Being in bed puts the stomach more or less at rest and lowers the fuel demand. The first gastric test is now made, the patient having been on a regular diet up to 8 o'clock of the night before the first test, which is made early in the morning. He is then fasted the rest of that day, given a test breakfast the next morning a second analysis made followed by another twenty-four hours' fast and a third test made without a meal.

Whether or not his fast is continued after this depends upon whether the acidity has been lowered by fasting. If it has not, alkalization is started at once. In that case the regular Sippy routine should be started at once; this routine may be found in several standard texts so I shall not detail it here.

At the end of three weeks the diet having been gradually changed so that the patient is taking soft foods and eating every two hours it has been my custom to give a test meal of two vegetables, one egg and bread and butter, in order to ascertain when the acidity curve reaches normal. The patient now being up and

around, is given three meals a day consisting of well cooked cereals and vegetables, eggs, fresh fish, bread and butter and a dessert such as gelatine or custard; between meals he is given milk and cream in amounts sufficient to cause him to gain weight if it is needed. A powder is given before each feeding and after each meal at the time when his acidity curve just about reaches normal. The patient continues on this routine for about one month when another test is made and if so indicated meat is added to his diet and the routine kept up for from six months to a year. Tests are made from time to time at different periods in the twenty-four hours, for with repeated gastric analysis we can foretell over-alkalinization and discontinue our powders for a few days.

If an uncomfortable diarrhea occurs we decrease our magnesia powders and increase the calcium carbonate. In some individuals it may be found necessary to substitute bismuth subnitrate for the calcium carbonate.

There are a few people to whom the idea of milk is revolting, and after a trial we are forced to seek other foods; immediately then, we start our soft foods, custards, gelatine, baked potatoes and vegetables that do not leave an excess of cellulose particles. Pork, veal, preserved meats, gravies, uncooked fruit, under-cooked cereals, under-cooked vegetables and all fried foods are a few of the main articles of diet to be avoided throughout the treatment.

Caution is to be used in prescribing calcined magnesia as it becomes inert when old, and this, I am sure, accounts for disagreeable symptoms arising when used.

What may be hope to accomplish by medical treatment? I can best answer this by giving you an extract from B. W. Sippy's chapter on gastric ulcer in Nelson's System of Medicine:

1. Pyloric obstruction due to spasm relieved.
2. Pain of ulcer controlled.
3. Excessive night secretion controlled.
4. Hemorrhage ceases as lowered acidity prevents disorganization of clot and devitalization of tissue.
5. Perforation never occurs after the second day of treatment.
6. Penetrating type of ulcer influenced well.
7. Surgically treated cases healed.
8. Healing proved on cases who have been treated and later died with other diseases.

In conclusion I want to state that there are a number of important features relative to gastric ulcer that I have necessarily omitted, as the treatment of hemorrhage, how the spasm

is relieved, etc., but from what has been read, the following points should be emphasized:

1. Ulcer of the stomach is more common than ordinarily thought and is not diagnosed at the early date it should be.
2. The history gives us our most important clues. Gastric discomfort—not pain—should be looked for. Intestinal gripping occurring before gastric discomfort may be an important symptom.
3. X-ray fails to reveal a large percentage of uncomplicated ulcers.
4. Fractional gastric analysis is an aid in making a diagnosis and is a most valuable index to treatment.
5. The treatment of gastric ulcer should be medical and a routine followed which will reduce the acidity in the stomach, as HCl devitalizes any tissue and in that manner prevents healing of the ulcer.

BIBLIOGRAPHY

1. Nelson's System of Medicine.
2. Nelson's System of Medicine.
3. Osler and McRae.
4. Nelson's System of Medicine.

611 Frisco Bldg.

DISCUSSION

Dr. J. J. Singer, St. Louis: I would like to ask Dr. Tyree to discuss an incident that happened in my work.

A patient who was routinely examined was found to have an achylia. He had known it for several years and was given hydrochloric acid for a considerable time but it increased a certain discomfort he had in the stomach. Someone told him to take bicarbonate of soda, and he was kept perfectly relieved. I am at a loss to understand that particular phase of this case, but he has definitely improved with the bicarbonate in spite of a total absence of hydrochloric acid.

Dr. Tyree: I cannot answer Dr. Singer's question, but I know this is very true in malignancy of the stomach. Where these cases have a low acidity or entire absence of free hydrochloric they will invariably do well from one to three months when put on a treatment of alkalinization. After that they go back again.

I recall one individual a year ago diagnosed as cancer and advised operation to which he would not submit. He was alkalinized for a while. He improved and gained something like thirty pounds in little more than two months, and then gradually went back. Why it has an effect where there is an absence of acid, I do not know.

A TEST FOR DIPHTHERIA IMMUNITY AND SUSCEPTIBILITY.—A method of testing the blood for the presence of diphtheria antitoxin has been devised by W. H. Kellogg, Berkeley, Calif. (*Journal A. M. A.*, June 10, 1922), said to be quantitatively accurate, and in this respect superior to the Shick test; also, it has the further advantage that it is applied at a central laboratory on blood which can be sent long distances by mail. In this new test, advantage is taken of the fact that the skin of the guinea-pig is sensitive to the minutest amount of diphtheria toxin.

THE JOURNAL

OF THE

Missouri State Medical Association

SEPTEMBER, 1922.

EDITORIALS

DEATH OF DR. A. R. CRAIG, Secretary, A.M.A.

As we go to press we learn that Dr. Alexander R. Craig, Secretary, American Medical Association, died suddenly Saturday night, September 2, while on his vacation at Port Deposit, Md.

COMMITTEE ON PUBLIC HEALTH AND WELFARE REPORTS PROPOSAL NO. 192 FAVORABLY TO CONSTITUTIONAL CONVENTION. DR. TUBBS MAKES MINORITY REPORT

On August 30 the Committee on Public Health and Welfare of the Constitutional Convention, through its Chairman, Mrs. Walter McNab Miller, presented Proposal No. 192 to the Convention with the recommendation that it be approved and incorporated in the new Constitution. This report is a majority report, one of the members of the committee, Dr. Alonzo Tubbs, of Gasconade County, having submitted a minority report. Dr. Tubbs throughout the session has been opposed to the Proposal, as he has opposed all measures giving authority to the State Board of Health or any other board to control the incidence and spread of disease, and his report amends Proposal No. 192 in such fashion as to nullify the force of the Proposal. We believe our members will be interested in reading the account of the entire transaction, and therefore we present the majority and the minority reports in full, together with the comments as published in the Journal of the Constitutional Convention. The reports read:

REPORTS OF STANDING COMMITTEES.

"Mrs. Miller, Chairman of the Committee on Public Health and Welfare, submitted the following Majority Report of the Committee on Public Health and Welfare:

To the Constitutional Convention of Missouri, 1922:

The Committee on Public Health and Welfare presents the following Report:

The Committee, by a majority report, rejected proposals numbered 75, 99 and 104, and returns them herewith with recommendation that they be rejected by the Convention. Proposal

that Proposal 192 become incorporated in the Constitution of Missouri, as Section 58, Article XIV, to-wit:

Proposal 192

RESOLVED, That a new section, to be known as Section 58, be added to Article XIV, of the Constitution, as follows:

Sec. 58—The General Assembly shall provide means for the safeguarding and promotion of the public health and welfare.

The present Constitutional provision, from which power for health and welfare work is derived, is Section 4, of the Bill of Rights, namely, "All Constitutional Government is intended to promote the general welfare of the people." The present Constitutional provision, as is seen, uses the language "promote the general welfare," while the provision submitted by your Committee adds a subordinate clause calling attention to a specific need under the general welfare clause.

Under these general provisions, education could well have been included, but it was felt wise, by the framers of the 1875 Constitution, to refer to so important a function of the State in definite terms and your Committee feels that, at the present time, the same reasons apply to public health.

The entire framework of public health agencies, state and local, has developed since the adoption of the last Constitution—nay more, the sciences upon which all modern public health work is based are of recent development.

In a recent decision, sustained by Chief Justice Wm. H. Taft, Judge Wannamaker, Justice of the Supreme Court of Ohio, expresses so well the Committee contention for its Proposal, that it is quoted as follows:

"Public health is the very heart of public happiness. The Constitutional guarantees of life, liberty and the pursuit of happiness are of little avail, unless there be clearly implied, therefrom, the further guarantee of safeguarding the public health, in order that life, liberty and the pursuit of happiness shall be made practical and plenary."

Your Committee felt that Proposal 192 gave the Legislature no power that it did not already have—nor did it place on the Legislature any restrictions or obligations which did not already exist. It does, however, state in a simple, direct form, a fundamental principle of the duty of the State regarding public health and public welfare.

It is not the duty of the Legislature to make laws about private health or private welfare and hence this provision limits the Legislature to "public health and public welfare." In this respect the provision is believed to be more

287 was referred to Committee on Agriculture and Conservation.

The Committee approved, by a majority vote, Proposal 192 and bases its report on the approval thereof, together with the recommendation that this report be approved and specific and in a sense included under, and subordinate to, the one in the present Constitution.

Your Committee believes the provision submitted is open to no valid objections, as all good citizens agree that the public interest comes before any private interest, and the interest of the whole people before the interest of any part of the people. It believes, further, that the provision in no wise infringes on any personal liberty in so far as that liberty does not affect the public good.

Before presenting this proposal, your Committee carefully investigated other State Constitutions. In the nine States (California, Washington, Texas, Delaware, Oklahoma, Louisiana, Florida, South Carolina, Wyoming) having a special article on health, a definite machinery for health administration was outlined.

This idea was rejected by your Committee. They believe that things put into Constitutions become inflexible and that there is greater danger in inflexibility and inelasticity than in their opposites.

Your Committee, therefore, contented itself with asserting a principle only, leaving it to the Legislature to make such changes, from time to time, as a change in conditions makes wise or desirable.

MRS. WALTER McNAB MILLER,
Chairman,

JOHN H. LUCAS,
J. B. DANIEL,
C. H. McCLURE,
MRS. M. E. MORROW,
WALLACE CROSSLEY.

Mr. Tubbs presented the following Minority Report of the Committee on Public Health and Welfare:

To Honorable C. M. Shartel, President of the Constitutional Convention of 1922:

Mr. President:

A minority of your Committee on Health and Public Welfare to which was referred Proposals numbered 75, 99, 104, 192, and 287, begs leave to report that it has carefully examined the same and begs leave to submit the following Minority Report. The minority of your committee begs leave to report that it agrees with the majority of your committee in reporting unfavorably upon Proposals 75 and 99; and in the re-reference of Proposal 287.

It offers the following substitute for Proposal 192:

The General Assembly shall provide means for the safeguarding and promotion of the public health and welfare by the authorization of such sanitary, hygienic and quarantine measures that have in the past, and which may in the future, be found to be effective in the prevention, the cure, and the prevention of the spread of disease, but that no authority shall be conferred upon any Board of Health, or other conservators of the public health, to compel any person or persons to submit to any medical treatment for the prevention, the cure, or the spread of any disease, against his or her will.

Nor, in the enforcement of any sanitary, hygienic or quarantine measures, shall any family be forcibly separated.

And this minority report of your Committee on Public Health and Welfare also recommends that Proposal No. 104 do pass and be made a part of the fundamental law of the state, for the following reasons: Because the law which it seeks to nullify is an unwarranted invasion of the most sacred right of American citizenship, by depriving thousands of Missouri women of the right to engage in an occupation for which they possess every necessary qualification, and because said law is an attempt to inaugurate a system of society totally incompatible with the principles of American liberty and the perpetuity of Popular government.

ALONZO TUBBS,

Member of Committee on Public Health and Welfare.

On the motion of Mrs. Miller, one thousand copies of the reports were ordered printed."

Not satisfied with the restrictions he seeks to place upon the State Board of Health and other health boards and health officers in their work of preventing disease, Dr. Tubbs offered an amendment to another proposal, and in doing so delivered himself of a fine oration which clearly stamps him as an enemy to progress in health promotion and education. We publish that amendment and his remarks on another page in this issue.*

Before leaving the subject of Proposal 192 we shall quote an editorial from the *St. Louis Post-Dispatch* which clearly establishes the attitude of that great newspaper as being the friend of reasonable measures to protect the public health, and acknowledges the world's indebtedness to science in the prevention and control of disease. The editorial follows:

Public Health in the Constitution

The Committee on Public Health and Welfare of the Constitutional Convention has shown its good sense in standing up for the principles of public

*See page 413.

health and sanitation against a flood of propaganda and persuasion and in recognizing the record of science in conquering epidemics and otherwise protecting the public from the menace of preventable and communicable diseases.

Whenever the majority of the people, through their General Assembly, decide against specific measures intended to safeguard and promote public health, it will be their privilege to take action on that occasion. But to place in the new Constitution restrictions tying the hands of the State from the use of the established means of science to protect public health and life would be the grossest folly. It is hardly conceivable that the convention would reverse its committee, which stood 7 to 1 for the majority report covering the brief section on public health.

WIDOW OF PHYSICIAN NOMINATED FOR CONGRESS

Peoples, customs, times, in fact all things of a finite nature are continually undergoing a transitional metamorphosis of a progressive nature. It is pertinent to assert that in our own times folks are accepting these changes in a more philosophic mood than has been the case hitherto. To the student of our social institutions there is nothing remarkable about woman's entry into the political realm, excepting from the viewpoint of man's egotistic assumption that he is a more superior being than his feminine helpmeet. Time has been slow in eradicating the influences of a Schopenhauer and other depreciators of woman's mental status, but in the present era woman seems to be in a fair way of establishing her station in matters of state.

So it is that here and there we note the appearance of a woman's name on the ballot for important offices of trust with more success as time passes on. And since at the present time we are willing to accord woman a place in matters of state, how gratifying must it be for Missouri physicians and Missourians generally to know that the widow of a former member of the Missouri State Medical Association has been nominated for representative in Congress from the Eighth Congressional District, Mrs. L. W. St. Clair Moss, of Columbia, relict of Dr. Woodson Moss.

Mrs. Moss brings with her nomination a talented mind and a high order of womanhood together with unusual personal attainments. Aside from the political atmosphere surrounding her candidacy, there is for Missouri physicians the family incentive of our medical household to prompt us to support Mrs. Moss, not only for her personal capabilities and efficiency but for the sake of the memory of the departed physician who commanded the admiration and respect of his fellow practitioners in Missouri and other states.

In the case of Mrs. Moss it is no mere plati-

tude to assert that her achievements bear distinction of an extraordinary character. In 1886 she married Prof. Frank P. St. Clair, a college instructor in Lexington, Ky., and shortly afterward they moved to Colorado. In 1893 Prof. St. Clair was elected president of Christian College at Columbia, Mo. His health was frail and at the time of his election it was understood that his wife was to share in the duties and responsibilities of this important office. After his death she received the unusual tribute of being elected to the presidency of Christian College, making her the first woman to receive that honor at Christian College. To this position of far-reaching responsibility Mrs. Moss brought those high qualities which had elicited the admiration of all who came in contact with her in her executive capacity. That her work was of an effective type may be well assumed from the fact that in 1903 Mrs. Moss was called to the presidency of Hamilton College in Lexington, Ky., where she again bore the distinction of being the first woman to hold that position of trust. In 1909 she was recalled to the presidency of Christian College.

Her second husband, our own Dr. Moss, for many years professor of medicine in the Medical School of the University of Missouri, will be remembered as one who fought long and steadfastly for higher medical education in Missouri. His was one of those staunch personalities who make no compromise with low standards where ethics and high idealism are concerned. He knew but one goal and that was the highest. In view of the broadened experience of this notable woman it is only logical to assume that she has developed a high state of efficiency and a broadened outlook upon life with its modern intricate problems which will make her a valuable asset to the national legislative body. As the wife of one of Missouri's foremost physicians Mrs. Moss has been in close touch with the delicate problems which confront American medicine, a factor which gives her a peculiar right to the support of all loyal Missouri physicians. A woman of Mrs. Moss' type can bring naught but dignity and progress to permeate her position in the national legislative body.

We believe the physicians in the Eighth District would do well to ponder the question of electing Mrs. Moss to represent them in Congress. Her sex should not deprive her of the support of the electorate, for the record of her achievements shatters all doubt of her capacity to accomplish big things. "It is not sufficient to say that for thirty years she has done a man's work," says the editor of the *St. Louis Post Dispatch*, "it was a work which only a big man could have carried out."

The Eighth Congressional District comprises the counties of Boone, Camden, Cole, Cooper, Miller, Moniteau, Morgan and Osage.

GORGAS MEMORIAL FUND

At the annual meeting held in Jefferson City last May the House of Delegates pledged the Association to the support of the movement for raising funds to erect a memorial to the late Major General William C. Gorgas. The plan was approved by the American Medical Association at the St. Louis session, and a committee was appointed to act on the question. The committee later reported to the Board of Trustees, which report is published in another column in this issue. The Board of Trustees has sent an appeal to all State Associations for co-operation with the committee.

There can be no question of the interest that our members will manifest towards this notable undertaking. The life and work of General Gorgas, so vividly reflecting the true spirit of altruism of our profession, ought to be immortalized through the efforts of the medical profession. The solicitation of funds will not be limited to the United States. The campaign is to be international, and a large response is expected from North, Central and South America whose peoples have been the chief beneficiaries of the labors of General Gorgas.

The suggestion to erect a fitting memorial to General Gorgas comes from President Porras, of Panama, and it has been decided that the memorial shall take the form of a scientific institute for the study of tropical diseases and preventive medicine to be located at Panama City. A full description of the plan will be found on another page in this issue.*

CLINICAL WEEK AT KANSAS CITY

For some time the members of the medical profession in Kansas City who are actively associated with the different hospitals, have considered holding a clinical meeting to last over a period of one week. This is to be part of the general plan of medical education in Kansas City and adjacent territory. The facilities furnished by the hospitals of Kansas City make it possible for a demonstration to be given in all lines of work, including laboratory and the specialties.

In order to start this program and perpetuate it, the Kansas City Academy of Medicine is sponsoring the venture. They feel that there is too much good material going to waste which should be made available for study

The present plan is to devote the entire week to the demonstration of medical subjects and the discussion relative to the different cases and conditions shown.

Such interchange of ideas will be of benefit to all those who attend the different sessions. They are making the program as interesting and as instructive as possible, so that all physicians who are able to take advantage of this meeting will attend. The preliminary announcement is published on another page.

JACKSON COUNTY MEDICAL GOLF ASSOCIATION

During July the entertainment committee of the Jackson County Medical Society arranged for a one-day doctors' golf tournament and invited each member of the Society who played golf to participate. The tournament was held at the Hillcrest Country Club, Kansas City, on the afternoon and evening of July 21, followed by a golf dinner on the porch of the clubhouse.

In the championship class Dr. W. L. McBride was first with an 85, and Dr. J. W. Beil and Dr. M. H. Clark tied for second with 87 each. Handicap prizes were won by Dr. G. O. Todd, Dr. J. H. Outland and Dr. Ralph Holbrook, the latter being tied with Dr. J. F. Pittam and winning in the play-off.

At the dinner the trophies were presented and a permanent organization was formed, Dr. J. M. Frankenberger being elected president and Dr. J. Q. Chambers secretary-treasurer. More than fifty physicians competed in the tournament and attended the dinner. The following were enrolled as charter members: Drs. Outland, Hickok, Millington, Laning, Keith, Blanford, Kinnard, Geraughty, C. E. Allen, Schutz, Chambers, McCallum, Welch, McBride, Dennie, Milne, H. S. Major, Thomason, G. Wilse Robinson, R. P. Miller, Bohan, W. M. Reed, Cantrell, J. Y. Simpson, Duke, McPherson, Sulzbacher, N. A. Tesson, James Tesson, J. A. Lea, Painter, Tom Fields, W. A. Shelton, Cappell, H. C. Anderson, A. E. Jones, A. E. Eubank, C. E. Sanders, O'Connell, Trimble, J. G. Montgomery, Ridge, Ralph Holbrook, Frankenberger, Todd, Kimberlin, M. H. Clark, McGuire, Beil, Sharp, McCarty, J. T. Pittam, Jabez Jackson, Francisco, Hamilton, Norberg.

NEWS NOTES

DR. W. J. HARNED, of Bethany, has acquired the Helibron Sanatorium at Bethany and changed the name to the Bethany Sanatorium and Hospital. When remodeled and refitted the hospital will contain thirty beds.

*See page 410.

A hydrotherapy department is one of the features.

THROUGH the death of two members of our Association there are two locations open in the rural district that offer excellent opportunities for country practice; one is a town of 1,500 the other 800. Any member interested in these openings may learn the particulars by addressing the secretary of the Association, 3529 Pine Street, St. Louis.

THE secretary has the name of a young woman whose training in the business world and whose education, character and good breeding eminently fit her for a position as executive secretary to a busy practitioner or a group of physicians. Any member needing the services of such a woman may learn the name by addressing the secretary, 3529 Pine Street, St. Louis.

DURING July the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies:

The Abbott Laboratories: Neocinchophen-Abbott Tablets, 5 grains.

Louis Hoos: Hoos Albumin Milk.

Mallinckrodt Chemical Works: Benzyl Benzoate-M. C. W.

THE crowning feature of the joint annual meetings of the Medical Association of the Southwest and the Tri-State Society at Hot Springs, Arkansas, October 16, 17, 18, will be three clinics which will be most profitable and well worth the trip, even if there were not other helpful scientific matters for discussion. Dr. W. T. Wootton, of Hot Springs, chairman of the general committee, announces that the mornings will be given over to clinics, the afternoons to scientific papers and the evenings to get-together meetings of the various college alumni and the usual social features. The Eastman Hotel will be headquarters, registration, exhibits and sessions all under one roof. The clinics will be conducted by authorities of nation-wide fame and the meeting will no doubt go down in the history of each Society as its most successful one. Dr. St. Cloud Cooper, of Fort Smith, Arkansas, is president of the Southwest Association and Dr. Charles A. Smith, of Texarkana, Arkansas, is president of the Tri-State Society.

ON August 17 the New Madrid County Medical Society, in conjunction with the Field Agent of the U. S. Public Health Service, Dr. Wm. N. O'Bannon, conducted a charity

clinic for the removal of adenoids and tonsils at New Madrid. Dr. O'Bannon had requested all the physicians in the county to send worthy cases to the clinic and he found a number of patients through his work in the public schools. Altogether twenty-eight cases were operated on by Dr. W. E. Yount, of Cape Girardeau. The operations were successful. The medical profession of the county responded to the request for co-operation with gratifying enthusiasm, every town in the county being represented by one or more physicians. Those present and taking part in the work were Drs. W. E. Yount, Cape Girardeau; Wm. N. O'Bannon, Field Agent U. S. P. H. S. and County Health Officer, New Madrid; J. D. Fakes, New Madrid; E. W. Harrelson, New Madrid; J. H. Cochran, Gideon; J. B. Bell, Morehouse; C. S. Blackman, Parma; E. E. Jones, Lilbourn; J. F. Waters, Matthews; P. M. Mayfield, Portageville; R. Lee Williams, Pt. Pleasant.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Borchardt Malt Extract Co.: Borchardt's Malt Cod Liver Oil and Phosphorus.

Intra Products Co.: Ven Sterile Solution Procaine 0.5 Per Cent., Ven Sterile Solution Procaine 2.0 Per Cent., Ven Sterile Solution Procaine 5.0 Per Cent.

Lederle Antitoxin Laboratories: Pituitary Extract-Lederle (Obstetrical), Pituitary Extract-Lederle (Surgical).

Parke, Davis and Co.: Diphtheria Antitoxin piston syringe containers, Antitetanic Serum piston syringe containers, Antigonococcic Serum 12 c.c. bulbs, Antistreptococcic Serum 20 c.c. piston syringe containers, Antistreptococcic Serum 50 c.c. piston syringe containers, Anti-Anthrax Serum, Antimeningococcic Serum, Diphtheria Toxin-Antitoxin Mixture, Tuberculin B. F. (Bovine), Gonococcus Vaccine 1 c.c. bulbs, Gonococcus Vaccine 1 c.c. syringe, Gonococcus Vaccine 5 c.c. bulb, Gonococcus Vaccine 20 c.c. bulb, Erysipelas and Prodigiosus Toxins (Coley) 1 c.c. bulb, Erysipelas and Prodigiosus Toxins (Coley) 15 c.c. bulb.

THE program for the clinical week at Kansas City under the auspices of the Academy of Medicine, October 3, 4, 5 and 6, is nearing completion. In the mornings of October 4, 5 and 6 clinics will be held at each of the following hospitals: Mercy Hospital, Kansas City General Hospital, U. S. Public Health Hospital, Trinity Lutheran Hospital, Bell Hospital, St. Margaret's Hospital, Bethany Hos-

pital, Christian Church Hospital, St. Luke's Hospital, St. Mary's Hospital, St. Joseph's Hospital, Research Hospital.

A daily bulletin will be published at the headquarters in Hotel Baltimore. In the evening of the fifth a banquet will be held and a speaker of national reputation will talk upon some live medical question of the day. The evening of the sixth the Academy of Medicine will give its program. There will be three essayists: Dr. P. T. Bohan, Medical; Dr. Jabez N. Jackson, Surgical; Dr. Frank J. Hall, Pathology.

The Kansas City Priest of Pallas hold their carnival on the same dates, but this will not interfere with the medical program as the Priest of Pallas have nothing scheduled for the mornings.

Bring your wives to Kansas City and let them attend the Priest of Pallas Ball with you on Tuesday night and on the other nights you can attend the medical functions while the ladies are being entertained. It is intended to make these yearly clinics a permanent feature of medical life in Kansas City.

THE Missouri Valley Medical Association will meet in St. Joseph, under the presidency of Dr. Paul E. Gardner, on September 21-22. The Buchanan County Medical Society is preparing for a series of clinics to be held at the various hospitals of St. Joseph on Tuesday and Wednesday, preceding the meeting, September 19-20. St. Joseph has a proverbial reputation for warm-hearted hospitality, and the arrangement committee, under the leadership of Dr. Floyd H. Spencer, announces that the "tang" of his city for entertainment and good fellowship will be fully sustained upon this occasion. The famous Hotel Robidoux will be headquarters, and all sessions will be held in the beautiful Crystal Room. The exhibits will be on the same floor.

One of the features of the second day will be a symposium on the "Early Recognition of Cancer" participated in by a number of men who have won national distinction in research work and clinical investigation. On Thursday evening at 7:30 o'clock, Dr. C. W. Hopkins, chief surgeon of the C. & N. W. Railway, will give an illustrated lecture on "Injuries and Surgery of the Spine," and Dr. N. M. Keith, of the Mayo Clinic, will present a paper on "Hypertension in Cardio-Vascular Disease," illustrated by lantern slides. Following the evening session will be a smoker and other entertainments. Members are urged to bring their ladies who will be entertained while the Fellows are attending the sessions.

The preliminary program follows:

"Causes of Duodenal Ulcer," Dr. E. P.

Sloan, president Illinois State Medical Society, Bloomington, Ill.

"Toxic Factors in Intestinal Obstruction," Dr. T. G. Orr, Kansas City, Mo.

"Convulsions in Children," Dr. S. Grover Burnett, Kansas City, Mo.

"The Phosphatic Index," Dr. J. Henry Dowd, Buffalo, New York.

"Some Phases of the Relation of Dental Focal Infection and Systemic Diseases" (lantern slides), Dr. Russell L. Haden, Kansas City, Mo.

"Renal Function in Prostatic Hypertrophy," Dr. Raymond L. Latchem, Sioux City, Iowa.

"Myoclonic Type of Epidemic Encephalitis," Dr. Lloyd James Thompson, St. Joseph.

"Cancer: Its Early Recognition," a symposium.

(a) Address, Dr. Fred J. Taussig, St. Louis, Mo. "How Far Can the Cancer Death Rate Be Decreased by Educating the Profession and the Laity."

(b) "Superficial Cancers," Dr. E. H. Skinner, Kansas City, Mo.

(c) "Gastro-Intestinal Cancers," Dr. John M. Bell, St. Joseph, Mo.

(d) "Cancer of the Breast," Dr. Donald Macrea, Council Bluffs, Iowa.

(e) "Cancer of the Uterus," Dr. Palmer Findley, Omaha, Neb.

OBITUARY

HERMAN TUHOLSKE, M.D.

Dr. Herman Tuholske was born in Berlin, March 27, 1848. He received his education in the Gymnasium of that city, and shortly after the completion of his studies he came to America and made St. Louis his permanent home. Here he began his medical apprenticeship and in due course graduated from the Missouri Medical College in 1869. In 1870 he was appointed physician to the City Dispensary where he remained for several years before engaging in private practice. While at the dispensary he inaugurated the ambulance service. He also at one time was in charge of the Quarantine Hospital.

Dr. Tuholske was appointed demonstrator of anatomy at the Missouri Medical College in 1873, and later was elected professor of anatomy while still holding the position of demonstrator. At this time his fees as demonstrator combined with his professorial emoluments exceeded the earnings of the other members of the faculty, whereupon, on his own initiative, he turned the entire sum that he received as demonstrator into the common fund. He occupied the chair of anatomy for

ten years and was then made professor of surgery. When the Missouri Medical College united with the St. Louis Medical College to form the Medical Department of Washington University he was appointed to the chair of surgery and clinical surgery.

In conjunction with Drs. Michel, P. G. Robinson, Spencer, Glasgow, Steele and other medical men, Dr. Tuholske was one of the founders of the St. Louis Post-Graduate School of Medicine. This school with its hospital was perhaps one of the first institutions of its kind in this country.

Dr. Tuholske was visiting or consulting surgeon to many hospitals and a member of numerous medical and surgical associations. He was at one time president of the St. Louis Medical Society. Among the honors that came to him, and which he prized most highly, was the degree of LL.D. from Westminster College, one of the oldest and soundest seats of learning in the state.

Dr. Tuholske married Miss Sophie Epstein in 1874, who died a few years ago, and he is survived by his two children, Mrs. Ernst Jonas and Dr. Lister Tuholske.

Such in bare outline are the more salient points in the career of a most remarkable man. In the fifty years of his active life was crowded an amount of work, physical and mental, that very few could have accomplished. He entered upon his medical studies with a thorough classical education, and a good knowledge of German, French and English. It is an interesting fact that his thesis for graduation was written in Latin, a language that had not been employed for such a purpose for many years in this country.

After some years spent in the public service, Dr. Tuholske entered upon the responsibilities of private practice with a large experience of disease and ill people. This wise man not only knew the gross physical effects of disease, but he understood as well the complicating psychical elements, and it was this comprehension of the factors involved in apparently purely bodily disorders that accounted in a considerable measure for his immediate and continued success in the practice of his profession.

From time to time Dr. Tuholske went abroad to attend the lectures and clinics of distinguished teachers in the various capitals of Europe. Gradually he withdrew more and more from general practice and devoted himself to surgery to which he had been strongly drawn from the beginning, and in which branch of the calling he ultimately reached a position that fully satisfied his early ambitions.

In notices of this kind it is customary to

dwell upon the humanitarian and charitable qualities of the subject of the memoir. It is likely that most medical men are more or less charitable—willingly or unwillingly—but Dr. Tuholske was really kindly and sympathetic to an unusual degree. In addition to sums that he gave to charitable and professional objects, gifts which one may say met the public eye, he exercised another kind of generosity practically secret and unknown to the world.

Like other men, he had both good and bad qualities and, as is usual in such cases, his friends saw only the good and his enemies only the bad. As a matter of fact, in Samuel Johnson's words, he was "a very good hater." He was aggressive, even pugnacious, but he had a longer memory for kindnesses than for enmities. He fought openly and shot no Parthian arrows. To his friends he was loyalty itself. He had a most tenacious memory and many old students will recall how after years of separation he could instantly place them, a gift that is said to be very useful to kings and politicians, but he went further than this, and was always ready to help anyone that needed it with good advice, or in more practical ways. Dr. Tuholske was a successful teacher. He had a ready command of language and on occasions a certain eloquence; he had read widely and had enjoyed a large experience. What he knew he knew thoroughly and had the happy gift of handing on his knowledge to others. He never lagged behind his time; he remained an eager student to the last, but was wise enough to know that new things are not necessarily good things nor old things necessarily bad.

Dr. Tuholske died in St. Louis, June 12, 1922, after a year or more of broken health; nevertheless, until a few months before his death, he went regularly to his consulting rooms, and countered his gradual enfeeblement with the courage and tenacity which had characterized his whole life.

"Only the actions of the just
Smell sweet and blossom in the dust."

W. A. H.

GEORGE W. GLOYD, M.D.

Dr. George W. Gloyd, of Branson, Mo., died at his home, July 10, 1922, from appendicitis, aged 78 years. He was born at Frederick, Md., June 19, 1844. He served in the Union Army in Company A, 24th Maryland Infantry during the Civil War. Shortly after the war he took up the practice of medicine in Taney County, Mo., where he practiced for over fifty years, retiring from active practice about three years ago. He had recently

been appointed city health officer at Branson. During the half century of his life which he had devoted to alleviating the ills of his neighbors he had earned the love of the people in the community. He loved little children and in addition to the love and attention he gave his own children he had taken into his heart and home thirty orphaned children to whom he gave the same loving care and sent them into the world better citizens for having been the recipients of his care and counsel. Dr. Gloyd was a member of the Taney County Medical Society, the Missouri State Medical Association and a Fellow of the American Medical Association. His loss will be mourned not only by the medical profession but by the entire community in which he lived. Funeral services were held from the Presbyterian Church, the Masonic fraternity, of which Dr. Gloyd was a member, officiating.

the Southeast Missouri Medical Association and was perhaps its most dominant figure, serving a number of years as corresponding secretary of the Society. He was never known to miss one of its semiannual conventions and his untiring efforts contributed in no small measure to the success of these meetings. He was greatly interested in good roads and gave much of his time and efforts to promoting the good roads movement in Scott County.

He loved the beautiful and abhorred the bad, and being at once an artist of no mean ability, as well as poet, philosopher and mechanic, he found time to develop the talents with which nature had so abundantly endowed him, and like an Aeolian harp his mind was ever attuned to catch the notes of inspiration in every wind that blew his way and translate them into those harmonies which made his life a blessing to his family and friends.

T. R. FRAZER, M.D.

WILLIAM SHELLEY HUTTON, M.D.

William Shelley Hutton, of Fornfelt, Mo., born at Commerce, Mo., October 10, 1879, was drowned July 30, 1922, in the Mississippi River near Grays Point, while attempting to rescue his only child, and which resulted in the loss of both father and son. His 42 years were spent in Scott County where his integrity, affability, and unassuming habits of industry had won for him a host of friends to mourn his loss.

To Dr. Hutton life was still full of the sweet nectar of music and laughter and song, and while in point of years, life's morning had passed the meridian, yet to a nature so gifted to embrace the virtues and reject the vices and superfluities of life, his every act and thought were still vibrant and vital and filled with hope and promise.

He loved the simple things, the woods and fields, the flowers and the songs of birds, and within the limits of his home and work he found the rich rewards of usefulness and peace, and whatsoever his hand found to do, it may be truly said, he did it with a will.

He took his first year in medicine at the University of Missouri where he has said his mind was nurtured to the precepts of the profession which he was destined to adorn so signally. He graduated from the Medical Department of the University of Nashville in 1900, and was for two years assistant physician at State Hospital No. 4, Farmington.

His habit of clear thinking and close observation made him an excellent and dependable diagnostician. His zeal for organized medicine knew no bounds and was familiar to every member of the profession in this section of the state. He was closely identified with

ROBERT H. LILLEMANN, M.D.

Dr. Robert H. Lillemann, of St. Louis, a graduate of the Homeopathic Medical College of Missouri, St. Louis, 1904, died at Barnes Hospital, July 21, 1922, aged fifty-six years.

Dr. Lillemann was born at St. Louis in 1866. After graduation from the public and high schools he took up the study of medicine and received his license to practice in 1904. He served an internship at the St. Louis Children's Hospital during 1905. He was a member of the St. Louis Medical Society.

SHERMAN MILLS, M.D.

Dr. Sherman Mills, of Macks Creek, a graduate of the St. Louis College of Physicians and Surgeons, 1903, died in Pitcher, Oklahoma, April 28, from angina pectoris. Dr. Mills attended Beaumont Hospital Medical College of St. Louis for three years, and was licensed to practice in 1900. He practiced at Branch, Missouri, for a short time, then moved to Macks Creek where he continued in active service until his death. He had been a sufferer from nephritis for several years and recently an occasional attack of angina pectoris warned him that the continuous strain of practice in his weakened condition might prove disastrous; therefore, he went to Oklahoma for a period of rest. He had been with his friend, Dr. Ervin Phillips, of Pitcher, Oklahoma, only a short time when the fatal attack overtook him.

Dr. Mills was a charter member of Camden County Medical Society, a member of the

I. O. O. F., Yeoman, Knights and Ladies of Security, and Knights of Pythias. His death is a severe loss to the community in which he lived, for he was always very active in movements looking to the welfare of the people, and was known everywhere as being prompt in his response to calls and thoroughly competent in his ability to care for those under his charge.

JOHN A. ASHER, M.D.

Dr. John A. Asher, of Trenton, a graduate of the New York University Medical School, 1881, the oldest practitioner in Grundy County, died at his home August 7, 1922, from pernicious anemia, aged sixty-eight years. He was born in Ohio, and came to Missouri when the family settled in Grundy County in 1869. He received his education at Grand River College at the University of Iowa and University of Michigan.

Dr. Asher had practiced in Grundy County for over forty years, having begun his medical career in his home county immediately after receiving his degree. He served as county coroner for several terms and was the examining physician for the pension board. He was a leading spirit in the Grundy County Fair Association and at one time gave considerable attention to breeding fine horses. He was one of the directors of the Citizens State Bank when it was organized, and at the time of his death one of its largest stockholders. He was a member of the Grundy County Medical Society, and during his whole life was highly respected and esteemed by his fellow practitioners and a large circle of friends and patients throughout the county.

Something more than a year ago he was compelled to relinquish active work on account of his physical condition and spent a good portion of this time in Arizona seeking improvement.

JAMES F. JETT, M.D.

Dr. James F. Jett, of Linn, Mo., a graduate of the Hospital College of Medicine, Louisville, Ky., 1891, died at St. Louis, June 11, 1922, from pulmonary embolism, aged sixty-six years. He was a member of the Gasconade-Maries-Osage County Medical Society and the Missouri State Medical Association.

HERMAN J. MORGANSTEIN, M.D.

Dr. Herman J. Morganstein, of Weingarten, Mo., a graduate of the Missouri Medical College, St. Louis, 1885, died June 10, 1922, from cerebral hemorrhage, aged sixty-three years. He was a member of Ste. Genevieve County

Medical Society and the Missouri State Medical Association.

PATRICK H. GRIFFIN, M.D.

Dr. Patrick H. Griffin, of St. Louis, a graduate of the Louisville Medical College and the Missouri Medical College, St. Louis, died at his home August 8, 1922, aged sixty-two years. Dr. Griffin was born in Ireland and was brought to this country by his parents when a year old. They settled at Henderson, Kentucky, where he grew to manhood, receiving his education in the schools of Henderson, and practiced at Henderson for several years before moving to St. Louis. He renewed his studies on several occasions at the Polyclinic in New York, and enjoyed an extensive practice. He never married but lived with his sister, Miss Sarah Griffin. He was a Fourth Degree Knight of Columbus, and a member of the St. Louis Medical Society.

MISCELLANY

THE GORGAS MEMORIAL FUND

At the St. Louis Annual Session the Board of Trustees reported to the House of Delegates that in response to a request received from the directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine for the co-operation of the American Medical Association, the Board had taken action which resulted in the appointment of a committee, representing the American Medical Association, to act on the project. The following were appointed: Dr. George E. de Schweinitz, Philadelphia; Dr. Charles W. Richardson, Washington, D. C., and Dr. Fred B. Lund, Boston.

The House of Delegates unqualifiedly endorsed the Gorgas Memorial as a tribute to a past President of the organization and one of its most distinguished and loved members. At its recent meeting the Executive Committee of the Board of Trustees received the following statement from the committee and directed its publication:

Statement and Appeal for Co-operation

As a result of the stimulating suggestion of President Porras, of Panama, it has been resolved that a fitting memorial shall mark the humanitarian service of the late Major General William C. Gorgas, and the beneficent influence of his life and work on mankind throughout the world. Following the thought of President Porras, it has further been decided that this memorial shall take the form of a scientific institute for the study of tropical diseases and of preventive medicine.

No better place could have been selected than Panama City, the gateway between the Atlantic and the Pacific, where General Gorgas' well-planned and executed work made possible the building of the Panama Canal.

It is hardly necessary to call the attention of the medical profession to the far-reaching effects of General Gorgas' work on the welfare of the people of the whole world, especially in tropical and semi-tropical climates, and in all places subject to the inroads of infectious disease.

We of the medical profession remember him as our Surgeon General during the early part of the World War. We remember his prompt recognition of the necessity of bringing into active service large numbers of physicians and surgeons from civilian life. We remember his genial and kindly nature, his high character, and his steadfast effort directed toward the organization and equipment of the Medical Corps of the Army. We remember the patriotic response. We remember him as a great sanitary officer, to whom we wish to pay a lasting tribute.

A central committee has been formed, with Admiral Braisted, retired, ex-President of the American Medical Association, as its president. The American Medical Association has appointed a committee of three to work in accord with the central committee, and through its members this appeal is made to the American medical profession.

The plan is to build at Panama an institute for the study of tropical and infectious diseases, with a hospital, laboratories, departments for research and all other facilities required in an institute of this character, erected and administered according to the most progressive, modern ideals. The Panamanian government, owing to the far-sighted, philanthropic vision of President Porras, has donated the great Santo Tomas Hospital, and also the ground on which it is proposed immediately to construct the buildings as they have been described. Dr. Strong has been appointed the scientific director.

In conjunction with this work in Panama, there will be established in Tuscaloosa, Ala., the Gorgas School of Sanitation for the purpose of training country health workers, sanitary engineers and public health nurses, especially educated to deal with the problems peculiar to the Southern states.

An endowment of six and one-half million dollars will be required to enable the institute to carry on the work according to the plans which have been formed.

The Republic of Panama has demonstrated its sympathetic and practical interest in this enterprise with splendid liberality. The physicians of our country, and especially the members of the American Medical Association, surely will not disregard the memory of a former President, and will seize the opportunity to make in this respect a contribution of which they will be proud.

The campaign for funds is to be international. A large response is expected from North, Central and South America, since the nations of these countries have been the chief beneficiaries of the labors of General Gorgas. It is fitting that his co-workers of the American medical profession should be requested to respond generously to this appeal. It is hoped that every member of the American Medical Association will make as liberal a subscription as possible. Any sum will be gratefully received. Checks should be drawn to the order of the "Gorgas Fund" and should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago.

CHARLES W. RICHARDSON, Washington, D. C.,
F. B. LUND, Boston,
G. E. DE SCHWEINITZ, Philadelphia.

MORE FREEDOM—ESPECIALLY MEDICAL FREEDOM

One of the Sections under consideration by the Constitutional Convention is Section 49, which is simply a reiteration of Section 53 of the present Constitution which declares that the General Assembly shall not pass any local or special law affecting certain rights of the people. Doctor Tubbs submitted an amendment to the committee's report which, if

adopted, would have a disastrous effect upon the State's function in the control of disease, the promotion of education and other lines of progress. From the Journal of the Constitutional Convention we take the discussion on the amendment introduced by Doctor Tubbs which makes good summer reading:

Consideration of Section 49

Mr. Dumm: Mr. Chairman.

The Chairman: Mr. Dumm is recognized.

Mr. Dumm: Mr. Chairman, that is another long Section and without any change, according to the memorandum on the report.

Mr. Farris: Mr. Chairman, that contains simply the prohibitions and limitations now in the Constitution, as provided by Section 53. I understand, Dr. Tubbs, you have a section you want to offer as an amendment to this Section.

Mr. Tubbs: I have an amendment which I will offer.

The Chairman: Mr. Tubbs offers an amendment to Section 49, which the Secretary will read.

Whereupon the Secretary read said amendment, which is as follows:

"Amend Section 49 of File No. 1, by adding at the end of such Section, on page twenty-five of such File, a new paragraph to be known as paragraph 34, to read as follows:

The General Assembly of this State shall have no power to confer any special privileges or rights upon any profession, association or organization of any of the people of this State, whereby such profession, through any Board appointed in its interest, or at its suggestion, to examine (sic) for the purpose of determining the qualifications of, and to admit or refuse to admit, such person or persons, so examined, to enter into the practice or occupation of any such profession, association or organization, and that the State shall, without unnecessary delay, resume the sovereignty that it has parted with, in conferring special privileges upon different classes of our people.

But the General Assembly may provide by law, for the examination, under direct State supervision, of all applicants for entrance into any profession or occupation for which the public welfare may seem to require certain qualifications. But in all cases the examination shall be of a primary character, but sufficiently exact to test the qualifications of the applicant for entrance into such profession, or occupation, and no such applicant shall be questioned as to the source of his information. Nor shall any extraneous information, or information not pertaining to the profession or occupation into which the applicant desires to enter, be required of such applicant."

Dr. Tubbs: Mr. Chairman, it seems to me like this is as important a matter as has come, or is likely to come, before this convention. I offered this amendment for the purpose of trying to induce this convention to restore to the State of Missouri the sovereignty she has parted with in conferring these special rights upon these different classes that she has established—in a system as diametrically opposed to the principles of American liberty as the darkness of Hades is opposed to the brightness of the noon-day sun. Nicholas Murray Butler—one of America's greatest educators, a man than whom none is better qualified to seize the helm of the ship of state and to steer her through the breakers of political expediency—in an article written by himself, shortly before the convening of this convention, said this is no new thing. It is thousands of years old, but to get away from this condition, is the aim of liberty, the ambition of democracy; and this is the reason

why I am trying to get this convention to take cognizance of this great question. It is not only wonderful, but it is appalling to those of us who are so unsophisticated, so crude in our ideas of up-to-date worldly affairs, to think that Abraham Lincoln knew what he was talking about when, in his Gettysburg speech, he spoke of government of the people, by the people, and for the people, as not perishing from the land. I say it is appalling to those of us who are so verdant as to regard the bulwarks of American liberty as being so adamant in strength as to be able to resist the powers of the earth to pull them down, to see the sappers and miners or aristocracy and special privilege undermining those bulwarks, and, if a halt is not called, it will be but a question of time until they will have those bulwarks as level with the ground as were the walls of Jericho after the blasts on the seven rams' horns.

It will only be a question of time until American liberty, as we know it, will be as extinct as the dodo, if a halt is not called upon this foolish legislative tendency of conferring special privileges upon every Tom, Dick and Harry that can organize himself into anything resembling a profession. I do not know just how many of these special privilege classes have been established in this State, but I can enumerate the allopathic doctor, the homeopathic doctor, the osteopathic doctor, the chiropractic doctor, the dentist, the barber, the horseshoer, the corn doctor, the itinerant spectacle peddler, and the trained nurse. Now the enumeration of these special privilege classes puts me somewhat in the predicament of the railroad engineer whose wife presented him with twin babies while he was out on one of his runs. In order to have a joke on the engineer, the women went out and borrowed a new born baby from one of the neighbor women. They took the borrowed baby in and laid it alongside the engineer's two. When he returned home he was ushered into the room where his wife and babies lay and when he saw the three little babies lying side by side he looked at them a moment and then asked: "Did any get away?" I do not know whether I have let any of these special privilege classes get away or not, but I have enumerated enough of them for all practical purposes. There are just one or two reasons for the existence of these special privilege classes. The first of these reasons is to make it more difficult for any one to enter into those professions or callings than it was for those who are already in them to get in. The object of this, of course, being to increase the remuneration of those who are already on the inside, by reducing competition to a lower ebb. The other reason is to have the state confer a dignity upon these professions or callings which those in them do not seem to be capable of conferring upon themselves. Most of the advocates of this special privilege legislation have both these ideas in view, either one of which is very unpatriotic, very un-American, very undemocratic, very un-Christian and very unmanly. Ex-President Taft gave this whole thing away—let the cat right out of the bag, so to speak, when, in an address delivered before the American Bar Association at Washington City, but a short time before the meeting of this convention, in a speech advocating the policy of sending out the members of the American Bar Association to grovel in the dust of professional degradation before each legislative body in this country, begging them to pass laws making it impossible for anyone to enter the legal profession who had not qualified himself with a collegiate or literary education in addition to his law education. I say that he let the cat right out of the bag, gave the whole thing away when he said in that speech "There are too many lawyers anyhow; and I have no fear of any dearth of lawyers, whatever the restrictions may be." Ex-President

Taft used the proper word when he used that word, restrictions, for that is just exactly what all this special privilege legislation amounts to.

It is "restriction." They may talk about the public weal rendering better service to the public all they please. The main idea is restrictive—to keep everybody out that you possibly can keep out. Now, if ex-President Taft had been a shrewd politician, he never would have used that word "restriction." A shrewd politician would have camouflaged the case by saying "regardless of the qualifications," but ex-President Taft not being a shrewd politician, he used the proper term and said "restriction."

Now, I am going to appeal to the lawyers of this Convention; I am going to appeal to the patriotism, to the sense of justice of the lawyers of this Convention, to put their veto upon this un-American, this foolish legislative tendency of conferring special privilege upon these classes of our people, thereby closing the doors of opportunity in the faces of the young men and young women of this nation when it comes to entering into any of these professions or callings. And why should I not appeal to the lawyers of this Convention for this purpose? They, above all others, ought to be able to see the deleterious effect that this policy is having and is destined to have upon the perpetuity of our republican institutions. And the lawyers of this Convention now have it in their power to demonstrate to the world that they are the worthy successors of their worthy predecessors of the early history of this country. There was not a more patriotic class of people in all America during the revolutionary period than the lawyers. In fact, they formed the very backbone of the spirit of resistance to the encroachment of the British Crown. Had it not been for the James Otises, the Josiah Quincy's, the John Adamses, the Timothy Pickering's, the Roger Sherman's, the Thomas Jefferson's, the Patrick Henry's, liberty might still be lying prostrate at the feet of British power. These lawyers were thoroughly imbued with the spirit of Americanism as set forth in the preamble to the Declaration of American Independence. They gave their all, their time, their talents, their money and even their lives for the establishment of American liberty; and they were followed by their worthy successors the Daniel Webster's, the Henry Clays, the Andrew Jackson's, the Thomas H. Benton's, the Abraham Lincoln's, and the Stephen A. Douglasses in upholding and maintaining it. And it is now up to the lawyers of this Convention to demonstrate to the world that they are the worthy successors of their worthy predecessors by upholding and perpetuating it, by putting an end to this foolish practice of conferring special privileges upon these classes of our people who are actuated almost solely by the most selfish motives in asking for this class of legislation. I do not know at just what period of the world's history Rome became a separate and independent nation. But, however that may be, it seems to be a conceded fact that from the very start the people of Rome were divided into two great classes—the patricians and the plebeians. The patricians alone held the full rights of citizenship. They alone dictated the policy of the government. They alone could hold the offices and while the plebeians were permitted to engage in trade and agriculture they had no voice in the conduct of the government. Neither could one of them hold the most insignificant office under the government. But there was a struggle between these two classes of people from the very start. A struggle that was long, fierce, and sometimes bloody. The plebeians gaining little by little upon the patricians, until at a period of about four hundred years before the beginning of the Christian era they had extorted from the patricians the full rights of citizenship. From this

time Rome took on new life. She had at least doubled her fighting strength. She was now in a better position than she had ever before been of carrying into effect her long cherished desire of bringing the world under her dominion, and now we are taking the very opposite course to that which gave the plebeians of Rome their citizenship and made Rome the mistress of the world, and we are doing this by dividing our people into classes and sects; and, when we have completed this process, we will have divided our people into two great classes—the educated and the uneducated—the casts and the outcasts.

The outcasts without any rights that the casts will be bound to respect and when we have completed this process we will have succeeded as completely in dividing the people of this nation into two great classes as the people of Rome were ever divided into Patricians and Plebeians. Benson J. Lossing in a preliminary remark to his biographical sketch of William Wirt says: "It is the great felicity of our Republican institutions that they throw no impediment in the way of merit, but the competition of rival abilities," and that is the principle upon which this nation was builded. That is what the framers of the declaration were thinking of when they declared that all men were created equal; that they are endowed by their Creator with certain inalienable rights among which are life, liberty and the pursuits of happiness, and that to secure these blessings governments are instituted among men; and it was never contemplated by the builders of this nation that legal impediment should ever be thrown in the way of merit, but that the contests of merit should be settled by rival abilities, and these are the blessings that were to be conferred upon all men by the establishment of this government. But we have been taking some extensive strides in the direction of overthrowing the intentions of the framers of this nation; year after year our legislative bodies are besieged by professional mendicants begging the alms of legislative action to enable them to throw legal impediments in the way of merit and to render the competition of rival abilities of no effect. But we are talking about educating everybody; we are going to educate everybody until they can come up to the required standard so that they can be admitted in any of these professions or callings—the laws notwithstanding; but this is a matter of impossibility, if we were to establish a high school or an academy in every school district in the state of Missouri it is questionable if above fifty per cent. of the people of the state would ever be able to pass beyond the eighth grade of an education, bread winning will drive them into the fields and factories before they have completed their education, but still if given a free hand many of these would fit themselves into higher spheres of life and become eminent in any profession or occupation in which they might engage, but if this restrictive legislation is to prevail, those who have been driven from the schools before the completion of this education will be completely debarred from ever lifting themselves into any higher spheres of life as they would be if the law should plainly say:

"Once a laborer, always a laborer;
Once a clod-hopper, always a clodhopper."

Mr. Dumm: Mr. Chairman, will the gentleman yield to a question?

The Chairman: Will the gentleman yield?

Mr. Tubbs: Yes, sir.

Mr. Dumm: I have been very interested in the argument of Doctor Tubbs. If I catch the drift of it I would like to ask him if he does not know that many of the railroad presidents in this country today started out as section hands?

Mr. Tubbs: Why certainly I do, and that is just

exactly what all of this special privileged legislation is trying to prevent and will prevent if you do not check it up before it accomplishes its object. Certainly I know that. Now, I sincerely hope that this Convention will see its way clear to restore to the people of Missouri the sovereignty that she has parted with in conferring the special privileges upon these different classes of people, these different classes of our society. Now, I am aware of the fact that that is a very large question, it is entirely too extensive to be solved upon an hour's notice. If this Convention should take this matter up under consideration, go into Committee of the Whole, take nothing else under consideration but this one proposition and should at the end of one month arrive at a satisfactory conclusion of that proposition they would have done well and would be entitled to the plaudits of the people of this state of "Well done, good and faithful servants." Now, so far as I am personally concerned, in the consideration of this great problem, I do not care if you do not leave one single word in this amendment that I have offered to this file. I care nothing about that, all I ask of you is to hold the principal idea in view and try to arrive at a proper solution of that problem. Now, part of this amendment is: "But the General Assembly may provide by law for the examination under direct state supervision of all applications for entrants into any profession or occupation for which the public welfare may seem to require certain qualifications, but in all cases the examination shall be of a primary character but sufficiently exact to test the qualifications of the applicant for entrance into such profession or occupation."

Now the law regulating the entrance into the legal practice of the State of Missouri comes very nearly complying with the requirements of this amendment. Nearly all of you here are lawyers. I believe fifty-seven out of eighty-three are lawyers, but notwithstanding you might be in the predicament of which the printer considered Horace Greeley to be in. Horace was a very poor penman, but he called one of his printers and rebuked him for his poor penmanship and the old printer replied: "Well, Horace, I don't think a few lessons in penmanship would do you any harm." And that is the way I am with the lawyers in this Convention. Of course, they are all well read in the law, but still the reading of a little more law might not hurt any of them, and I am going to read the law of the state of Missouri which provides for the entrance of anyone to legal practice. I guess you all have some idea about it, but it won't hurt any of you to refresh your memory.

Now gentlemen, and especially you lawyers, give me your attention for a minute so you can know how you got into the practice and what will be required of anyone else to get into the practice. "The power to admit any licensed person to practice as attorney and counsellor in the courts of record in this state or any of them is hereby vested exclusively in the Supreme Court subject to such regulations as are hereafter provided. Every applicant for such admission and license must be at least twenty-one years of age, of good moral character (you know that lawyers all comply with that), and a resident of this state. Every such applicant in addition to furnishing satisfactory proof of his compliance with the above qualifications must also have acquired a general education equivalent to that obtained by the completion of a common or grammar school course of study and shall possess a fair knowledge of the subjects of history, literature and civil government.

There is nothing wrong about that that I can see. That is exactly the qualification that should be required for anyone who wants to enter into any profession. But we are making it in these special professional classes much higher than that. Why, I

heard John T. Hodgen, one time, who became one of the greatest physicians and surgeons in the state of Missouri, in speaking to a class of graduates in the Missouri Medical College that had been required to spend two years in acquiring their medical education, he was complimenting them upon this fact and he said: "When I came here they only made me study three months but they have made you study two years and now the medical profession are agitating the question of requiring an eight-year education before you can enter into the practice of medicine." That is unreasonable. Absolutely unreasonable. The Missouri law fixing the qualifications of the practitioners at the bar in this state is unobjectionable so far as I can see it and I would like to see the same principle applied in regard to the qualifications of anyone entering any profession that requires any qualifications at all. But I want it to be done under the auspices of the state just as it is now in regard to the legal profession. Taken out of the hands of these special professional classes and returned to the hands of the state, just as the entrance into the law practice is in the state of Missouri. It requires the Supreme Court at certain times to appoint a certain number of lawyers to conduct this examination. It specifically prohibited any member of any faculty or of any law school from being a member of the examining board, and this is the principle that I am pleading with you to apply to every profession in the state of Missouri, and a great many of these people who have had special privileges conferred upon them—it is a simple farce—it has always been a simple farce. Why should an itinerant spectacle peddler be required to go through a study of your years in order that he may start out with a three dollar pair of spectacles in his pocket and sell them to you for thirty dollars (\$30.00)? That is all there is in this optometry law. The itinerant spectacle peddlers are the greatest band of cut-throats that ever went unchanged. And yet the state of Missouri has conferred a special privilege on them and has given them the privilege of selling a three-dollar (\$3.00) pair of spectacles for thirty dollars (\$30.00).

Now I expect I have said about as much as I ought to, or as much as I am able to say in regard to this matter, and I only want to impress it upon your mind that this seems to me to be a matter to be examined very closely. It is entitled to your most careful consideration and after you have given it your most careful consideration then we must all say amen to your verdict. But if this committee, before finally passing upon it, would pass it over to the Convention for its determination and not vote it down in this committee, of course that is up to you whether you do that or not, but I would take it as a great favor if you would.

Mr. Pearson: Mr. Chairman.

The Chairman: Mr. Pearson is recognized.

Mr. Pearson: Mr. Chairman, I am inclined to be of the persuasion that Dr. Tubbs has the "right sow by the ear" in his remarks. There is an old saying to the effect that if you "silver wash a pewter cup it will be pewter still." I think it was the good old poet of the common people, Robert Burns, who observed in his homely way about that:

"Set of dull conceited hashes,
Confuse their brains in college classes,
Gang in starks and come out asses,
Plain truth to speak."

America has been called but another name for opportunity and my observation within recent years is to the effect that there is a tendency to build up a mass of artificial distinction between men with re-

spect to their activities and to discriminate between one another upon a purely artificial basis.

There is another saying to the effect that orators are made and poets are born. And as I cast about and observe in a silent way and from what doctors, lawyers, preachers and all of the other professional titles are generally born and not made.

Now in our country and in our bar there are some legal practitioners who, every time they get up to squeak, murder the good mother English in a way, but they are among the most efficient, effective and capable lawyers we have at the bar, and so I think it is about doctors. I don't believe when I go to employ a doctor I inquire what school of medicine he is a graduate of, how many letters he has after his name, or whether he is a graduate of this school or that school or the other. Men learn to make estimates of one another upon the basis of those qualities which are native and inherent. Those distinctions and qualifications which fit men for their activities are in the first place inherent. But by diligence they are cultivated to a certain state of efficiency. I regard the sentiment of the man who said that he hoped at his next incarnation the lords of Karma would see to it that he was born the next time half Irish and half Jewish, because, he said, the Irishman is always happy as long as he's got a dollar and the Hebrew always has it. The idea is that it is better to have certain inborn inherent capacities and qualifications than it is to try to effect them in some manner as someone else has them.

Another public man of recent years has said: "A college is a place where diamonds are dimmed and pebbles polished." What he meant to say was that the stamp of the institution was not by any means a necessary qualification at all. And the import of the doctor's remarks and the purport of his amendment seems to me to strike at these artificial distinctions.

He spoke of the provision of optometry and it was an apt illustration, and it recalled to my mind an incident in our town. We had a man there who was a banker. He came to town barefooted and worked at three dollars per week as a boy and on Sunday he worked at the place where he stayed for his board, saved his money, and he grew up to be one of the most successful business men and bankers in that community. He came to be an old man and after a while he had to have spectacles and I had it from the mouth of one of our local professional oculists; he said there is the banker who always wears nothing more or less than a cheap pair of glasses from the ten cent store. The man died a short time ago, a man of good ripe years, and it was not from any defect in his eyesight, either.

Now, I say the doctor is on the right line. These unnatural and artificial distinctions which endeavor and tend to create classes among men are in fault. It tends to discriminate among men and make for monopoly and instead of protecting the public it is often the cause of imposing on the public the necessity of going to men who are not qualified but who simply have some diploma or other mark conferred upon them, according to some mathematical rule. I am therefore for the good doctor in his effort to amend this defect.

The Chairman: Any further discussion on the amendment?

Mr. Farris: I move that the amendment should be printed so that the Convention can read it before taking a vote on it and I am going to ask the committee to pass that section for further consideration until we can see it.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
 Montgomery County Medical Society, Dec. 15, 1921.
 Chariton County Medical Society, Dec. 23, 1921.
 Webster County Medical Society, Dec. 27, 1921.
 Clark County Medical Society, Jan. 13, 1922.
 Reynolds County Medical Society, Jan. 17, 1922.
 Camden County Medical Society, Feb. 8, 1922.
 Schuyler County Medical Society, Feb. 10, 1922.
 Perry County Medical Society, Feb. 13, 1922.
 Vernon County Medical Society, March 24, 1922.
 Pulaski County Medical Society, March 31, 1922.
 Atchison County Medical Society, March 31, 1922.
 Laclede County Medical Society, April 1, 1922.
 Christian County Medical Society, May 9, 1922.
 Oregon County Medical Society, May 29, 1922.

CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met in the Masonic Hall at Birchtree Tuesday, July 11, at 2 p. m., with the following members present: Drs. A. Johnston, T. W. Cotton, Frank Hyde, W. T. Eudy, R. I. Davis, and H. L. Meador. The meeting was called to order by Dr. W. T. Eudy, president, and the minutes of the previous meeting were read and approved.

Dr. T. W. Cotton read a paper on "Obstetrics in Twenty-five Years of Practice in the Country." It was a very good paper and was fully discussed by all the members present, and some real good ideas were gotten from his experience.

Dr. Hyde, Dr. Davis and Dr. Eudy reported obstetrical cases which were very interesting and were discussed by all.

Dr. Johnston reported a case of railroad accident giving the details fully, after which the members discussed the case.

Dr. A. Johnston, of Grandin, was elected president for the year 1922-23.

Dr. H. L. Meador, of Van Buren, was re-elected as secretary for the year 1922-23.

The next meeting will be held at Winona, August 15.
 H. L. MEADOR, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in Liberty, Monday, August 28, at high noon. Sixteen members and their wives attended, besides our good Councilor, Dr. Spence Redman, of Platte City, and Drs. Frank J. Hall, R. D. Ireland, and John G. Hayden, of Kansas City. The meeting was held, by invitation, at the splendid home of Dr. and Mrs. F. H. Matthews, who were assisted by other Liberty ladies in rendering every guest the utmost in welcome and hospitality.

The sweetness and charm of this home, brightened by the loveliness of those who assembled for our entertainment, rendered this an occasion never to be forgotten. The dinner? Fried chicken, country sugar cured ham four years old, and every conceivable thing that goes with 'em. It is beyond the words of a venerable and moss-grown secretary to describe it. Above it all loomed the fraternal spirit which, after all, is the foundation of organized medicine! Fortunate indeed are the men

who can be members in good standing in this Association.

Dr. J. H. Rothwell led the scientific program with a paper on "Pneumonia." It was strictly a Rothwell paper, assembled from the rich experiences of the doctor. Bristling with the points of personal investigation, we listened to the essayist, whose old subjects are ever made new. I wish I could give the substance of this paper in detail, particularly covering the broad etiology of this dread disease.

Dr. Spence Redman opened the discussion with a compliment to "one of the best County Societies in Missouri." All members present supplemented the discussion. Too many points brought out to mention here. Dr. Burton Maltby mentioned several interesting experiences in army hospital work overseas.

Dr. R. E. Sevier reported in detail two cases illustrating the difficulties confronting the general practitioner in the diagnosis of abdominal tumors. These reports were not commonplace, but were thrilling in interest, dealing with emergencies when the soul of man is tried to its limit.

Dr. W. H. Goodson closed the program with an excellent talk on lay education in matters medical. He favored "health lectures" under the auspices of the medical society by men qualified to instruct. He believed it necessary to broaden the vision of our people by giving them food for thought, of the right kind, and felt that this is the best sort of propaganda to wage against the horde of charlatans who deceive the people and who are just now a menace to public health more than ever. The subject brought out considerable warmth in discussion, Dr. Matthews saying "that our first duty is to absolutely refuse countenance to any cult, legalized or not." Dr. Maltby believed it could be better accomplished by column work in the press. All agreed that fleas are acquired by lying down with the dog.

Dr. Suddarth proposed a vote of thanks to the committee on program and to the host and hostess of this delightful occasion. A rising vote of thanks prevailed, after which, adjournment. Next meeting in Excelsior Springs in October.

J. J. GAINES, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society took "wheels" Tuesday evening, June 13, and transferred its meeting place to Huntsville. One of the best meetings for many months was held in the Chamber of Commerce rooms. A program was given as follows: "Gastrointestinal Autointoxication with Acidosis," by Dr. Barnhart of Huntsville. "Anesthesia Acidosis," Dr. Streeter. "Diabetic Acidosis," Dr. Ragan. The papers were very generally discussed by the members and warmly commended.

An invitation was extended by Dr. G. M. Nichols to hold the next meeting at Higbee. It was decided to make this meeting purely social with an invitation to every member of the medical profession in the county to be present. The hours will be from 2 to 8:30 p. m., Tuesday, July 11th. If the weather is not suitable the meeting will be the Tuesday following.

All members will be expected to bring their families and spend the afternoon on the banks of the C. & A. lake. Mrs. Burkhalter, Mrs. Winn and Mrs. Nichols of Higbee were appointed a committee on arrangements and Mrs. Dixon, Mrs. Nickell and Mrs. Ragan of Moberly, Mrs. Barnhart of Huntsville and Mrs. Woods of Clark were appointed a committee to arrange for the lunch.

Those present were: Drs. G. O. Cuppidge, R. A. Mitchell, T. S. Fleming, S. T. Ragan, R. D.

Streeter, L. O. Nickell, L. A. Bazan and C. H. Dixon of Moberly; Drs. D. A. Barnhart, G. G. Bragg, W. P. Terrill and R. G. Epperly of Huntsville; R. A. Woods of Clark; G. M. Nichols of Higbee and P. C. Davis of Madison.

After the business session was ended all adjourned to a cafe, at the invitation of the Huntsville doctors, where a luncheon was served.

RAY COUNTY MEDICAL SOCIETY

A called meeting of the Ray County Medical Society was held at Richmond, in Dr. C. B. Shotwell's office at 2 p. m., July 5, Dr. L. D. Greene presiding, and the following members present: Dr. C. B. Shotwell, Dr. L. D. Greene, Dr. Thos. H. Cook, Dr. R. L. Hamilton, Dr. A. R. Remley, all of Richmond.

On motion by Dr. Hamilton, Dr. Thos. H. Cook, of Richmond, was elected president of the Society to fill the unexpired term of his father, Dr. Thos. B. Cook, of Rayville, who died April 30.

Resolutions of respect in memory of our late president, Dr. Thos. B. Cook, were adopted.

Mrs. Hackett, Secretary of the local Red Cross Chapter, addressed the Society relative to the campaign in Ray County by the Division of Child Hygiene, Missouri State Board of Health, consisting of free clinics in the various towns of the county.

The subject was discussed by various members. All objected to the clinics and the following resolution was adopted:

WHEREAS, the Division of Child Hygiene of the Missouri State Board of Health is intending to put on a campaign in Ray County consisting of free clinics, etc.,

Resolved, That the Ray County Medical Society refuses to co-operate with the campaign until further investigation.

No further business appearing, the Society adjourned.

A. R. REMLEY, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the Masonic Hall at Ava, Thursday, August 3. The meeting was called to order by the president, Dr. R. M. Norman, at 1:30 p. m., with the following members present: R. M. Norman and J. B. Cunningham, of Ava; R. M. Rogers and J. A. Fuson, of Mansfield; R. A. Ryan, of Norwood; J. R. Davis, of Noble; E. C. Witwer, H. G. James and A. C. Ames, of Mountain Grove. The minutes of the last meeting were read and approved.

Dr. R. M. Rogers read a paper on "The Acute Endometrium," in which he considered the subject of septic and specific infection of the uterus and brought out many points of great importance. All present discussed the paper at considerable length.

Dr. A. C. Ames gave a talk on "Endocrinology and Organotherapy," in which he emphasized the importance of this newer and less well understood subject and its application to a list of conditions, as bacteriology applies to another important group of diseases. Several members discussed the subject and it was generally agreed that it is worthy of more attention than has been given to it.

The meeting adjourned at 4 p. m. to meet at Mansfield, November 2.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

SYMPTOMS OF VISCERAL DISEASE. A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine by Francis Marion Pottenger, A.M., M.D., LL.D., F.C.A.P., Medical Director Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California; author of "Clinical Tuberculosis," "Tuberculin in Diagnosis and Treatment," "Muscle Spasm and Degeneration," etc. Second Edition. Eighty-six text illustrations and ten color plates. C. V. Mosby Company, St. Louis, 1922. Price, \$5.50.

In spite of the fact that it is the second edition it is, nevertheless, a difficult matter to write a review of Dr. Pottenger's work that would enable a stranger to form any adequate conception of its scope and standpoint. Your reviewer would simply note, therefore, that Dr. Pottenger gives an outline of the anatomy of the sympathetic and para-sympathetic nervous systems, discusses in a general way their physiology and tries to point out how they influence symptoms in clinical disease. The subject is so broad that it is difficult even for a man of Dr. Pottenger's erudition to cover the matter so definitely that the reader may obtain adequate concepts. Consequently, those who undertake to read Dr. Pottenger's work must be prepared to study it, and in addition look up their text-books on anatomy, physiology and pathology, to elucidate some of the obscure points. It would be more helpful to the ordinary clinician if Dr. Pottenger had given a greater number of case histories to illustrate his meaning.

In publishing this work Dr. Pottenger is rendering the profession a great service for it calls to mind the lack of knowledge of this subconscious nervous system and our tendency to ignore everything except the material pathological changes found in disease.

G. H. H.

HYPERPIESIA AND HYPERPIESIS (HYPERTENSION). A Clinical, Pathological and Experimental Study. By H. Batty Shaw, M.D., F.R.C.P., Physician to University College Hospital and to the Brompton Hospital for Diseases of the Chest. Henry Frowde and Hodder & Stoughton, American Branch, 35 W. 32 St., New York. Price, \$6.50.

In this book of one hundred ninety-one pages the author gives his views of hypertension. He assumes some toxic substance the cause of increased blood pressure in all cases. No mention is made of nerve stress and strain nor of heredity. His conclusions are formed largely from the study of forty-seven cases, all of which had complete autopsies. Over seventy per cent. of these showed changes in the Malpighian corpuscles. Nineteen cases died of uremia and in three of these no kidney disease was found.

The author's view is that when the cortex of the kidney is diseased a pressor substance, "rennin," is formed which acts on the musculature of the arteries. He assumes that rennin is some sort of pathological internal secretion. When the kidneys are not diseased the cause of hyperpiesia is assumed to be some toxic substance formed in the gastro-intestinal tract.

In the treatment he emphasizes rest and condemns "scientific" dieting.

The most valuable part of the book is the post-mortem reports which are complete and instructive. The case histories and especially the physical findings are incomplete and indicate superficial clinical observation. No mention is made of blood chemistry, but this is not a criticism. The book has considerable value.

P. T. B.

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ORIGINAL ARTICLES

THE PERMANENT CURE FOR TRIGEMINAL NEURALGIA*

W. T. COUGHLIN, M.D.

ST. LOUIS

I realize perfectly well that whenever a surgeon begins to talk about "cure," his hearers begin to think he ought to consult an alienist, or something of that kind. It is a fact of which perhaps we ought to be ashamed, that we are not able to cure trigeminal neuralgia without the aid of surgery. But we are forced to resort to surgery if we want to cure the disease permanently.

Before describing the surgical procedure, it is necessary to say something about the differential diagnosis of trigeminal neuralgia. There is perhaps no disease in the whole category of diseases we are called upon to treat where the need for relief is so urgent as it is in this disease. Every one has run across trigeminal neuralgia. There are a great many neuralgias that are sometimes called trigeminal that are not true trigeminal neuralgias. If the procedure I am about to describe is applied in anything except real trigeminal neuralgia, I think disappointment will follow.

Our knowledge of the disease goes back to the dawn of medical history. The classical picture of the disease is one that is well known. Generally it comes on somewhere about thirty-five, although we have cases that are in the early twenties, and some even in childhood. Any branch or division of the nerve may be first affected but most often it is some branch of the middle division, and about the most frequent spot for its commencement is somewhere in the upper lip between the angle of the mouth and the side of the nose. It begins as a sharp, lancinating pain, spasmodic in character, lasts for a few seconds and is gone. Then it comes back, perhaps in half an hour or less time, and this continues for a few days, or perhaps only for a day. The recurrence of these spasms may go on for

several days but gradually, as time passes, the duration of the spasms is longer until perhaps the patient will have an "attack," as he calls it, that lasts for weeks or months.

The pain at first is limited to the one spot at which it began. By and by he notices that it shoots in various directions up toward the head. It does not always follow the trajectory of the nerve involved. It may begin close to the lip, and the patient will tell you it runs alongside his nose toward the top of his head. Often there is a painful spot in the region of the gum of the last molar, or perhaps in the bicuspid region, or inside the cheek. The slightest pressure over the spot where this pain began while the patient is in one of his attacks is liable to produce a spasm, and he tries to avoid anything that can touch that spot. Speaking or drinking or eating or even a draft of cold air may be enough to excite a spasm.

Presently other spots in the same nerve distribution may become affected, and it goes to other divisions. Generally those involved are the lower two, but the entire side of the head may be the seat of the pain when the disease has reached its height.

Now, there is a neuralgia that begins in the middle division of the nerve and radiates backward apparently along the base line of the skull. It is accompanied by pain behind the ear, and it may radiate down the shoulder and arm. It is not true trigeminal neuralgia. The operation directed toward its cure should not be root section. I have had patients who have had the ganglion removed for this neuralgia and who still complained of the trouble. It has come to be called Sluder's neuralgia. He discovered, if he applied cocaine to a certain area inside the nose near the region of the posterior part of the middle turbinate bone, that the spasm was relieved for a while. Then he resorted to alcoholic injections into the ganglion of Meckel and has succeeded in curing a great number of such cases for a greater or less length of time. It seems to be in some peculiar way more successful than resorting to the actual section of the root or the removal of the ganglion of Gasser. It is interesting to know that Carnochan, of Philadelphia, about 1850-60, was removing Meckel's

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

ganglion as a cure for tic douloureux and both he and others reported several successful cases. Lately it has been removed by Frazier for Sluder's neuralgia and with good success.

There is a neuralgia that belongs to the facial nerve, which is a motor nerve with wide sensory connections. Stretching of the facial nerve has been beneficial in that disease. This kind is generally accompanied by facial spasm.

There are certain diseases of the sinuses more or less likely to be accompanied by pain in the face. Disease of the middle ear may be at the foundation of a trigeminal neuralgia. So it is with disease of the sphenoidal and ethmoidal sinuses. If one is in consultation with a good rhinologist, the cause of that neuralgia can generally be found and it is not necessary to resort to root section for the cure of the disease.

Caries of the teeth is sometimes another important factor in the production of the neuralgia. Of course everything of that kind should be investigated and excluded before resorting to actual surgery on the nerve itself.

I remember a case that came to the clinic and passed under the eyes of I think about six rather alert men and had an alcohol injection made. The patient returned for a second injection some time later, when a cancer was discovered which began in the furrow between the tonsil and tongue. This man presented as fine a picture of true trigeminal neuralgia as I have ever seen. This is a good example of reflex neuralgia.

I am familiar with a patient who once in a while has an attack that seems to begin about his ear and run to the top of his head, lasting three or four days at a time. He is relieved by the rhinologist who makes an application in the region of the sphenoidal sinus and cures the disease.

It is necessary to think about tumors that might involve the ganglion. Brain tumors, etc., have been associated with trigeminal neuralgia. There should be an examination made of the eye ground, and the neurologist should be consulted in order that one does not do surgery where it is not indicated.

There is another thing that is also resorted to in these patients, and that is X-ray examination. A stereoscopic picture of the skull, in two directions, is always made, but so far we have not found anything that might be of benefit.

The medical cures of the disease I shall not go into. Final resort must be had to morphine or some of the opiates and many come in that condition where they have had it for some time. Finally morphine does not relieve the pain unless the patient is kept deeply

under its influence all the time while the attacks are in progress.

A patient sometimes comes in with one side entirely unwashed because he does not want to touch that side at all for fear of exciting a spasm. One side of the tongue may be coated while the other side is clean—the patient keeping all the food on the good side of the mouth while chewing. Usually, however, very little solid food is taken while an attack is on.

With regard to the cure of the disease, about the commonest operation that is performed for this disease is tooth extraction. Nearly all of the patients have had more or less of their teeth extracted. It is thought by the patient that the tooth is involved; the doctor thinks so, too, and the tooth is removed. Then he finds out that it was not the proper tooth; it was the tooth in front or behind. Finally all the teeth have been extracted. I have seen many gums where all the teeth have been extracted for the cure of the disease, of course without benefit.

Nerve section, or cutting of nerves, has long been resorted to by surgeons for the cure of neuralgia. As long ago as the second century, cutting of nerves has been practiced. It fell into disuse, but was revived one hundred years ago. Abernathy cut a section out of the ulnar nerve for the cure of disease in the little finger. It was discovered the nerves soon re-united and the disease became as bad as ever. It was noticed if a section were removed, the disease was longer in coming back.

A great many other procedures, such as burning the nerve, and splitting the ends and turning them back so they could not unite, were resorted to. Toward the end of the last century Abbe advised the interposition of some solid substance between the sectioned nerves.

Thiersch advocated the removal of the branches of the nerve, and was successful in tearing out large pieces. The longer the branches removed the longer was the recurrence of the disease delayed. The operation of Maligne—cutting the infraorbital and tearing it out—is still resorted to, by the tyros, but none of these are permanent in their results.

Mears, in 1884, recommended that the ganglion of Gasser be removed. It had been discovered that the sensory spinal nerves had their origin in the ganglions of the posterior roots. The fifth nerve being analogous to a spinal nerve, ganglionectomy was recommended.

In 1890 Horsley had done the operation on monkeys and dogs with success. He tried it on a human being, going across the dura to do it, but the patient died on the table.

Rose, his pupil, had a case in which the pa-

tient wanted the whole upper jaw removed for neuralgia. Even such a terrible operation had been previously practiced for the cure of this disease and Rose undertook the operation, with the understanding that if it were possible, after removing the upper jaw, he would bore through the base of the skull and remove a portion of the ganglion. The patient consented; the operation was successful but the procedure never became popular.

Shortly after this the method of opening the skull and leaving a portion of the bone in the flap was devised by Wagner.

Some time later, Hartley, of New York, opened the side of the skull, pushed the dura to one side, and removed the ganglion. Six months afterward, Hartley having in the meantime reported his case, a German surgeon (Krause) reported a series of operations of exactly the same kind. It came to be known as the Hartley-Krause operation. The mortality was high.

The French surgeon, Doyen, advocated cutting lower down without turning up a flap of bone—just gnawing away a portion of the skull and removing the ganglion.

The procedure followed by Cushing resembles this but the base of the skull is not gnawed away so far; the dura is pushed up and the ganglion is reached. He leaves the upper part of the ganglion in order not to have any eye troubles follow. It seems to me if the ganglion is left at all the disease is likely to recur. When a patient approaches us with a request for an operation of this size he does not want any come-back. He wants to be permanently cured.

In 1900 Frazier, at the suggestion of Spiller, cut the root behind the ganglion. That has since then been done by him in more than 100 cases and by Adson in about the same number, and so far no regeneration has occurred. That is the procedure I am about to describe.

The chief objection to it is that it is an operation of some magnitude, and when practiced under general anesthesia we sometimes have seen patients who were supposed to have had the root cut, but who continued to have the pain. Some have even been operated several times. This is not the fault of the operation.

Another objection is the danger. It is in unskilled hands a very dangerous procedure. But it can be safely done. In the best hands, even under general anesthesia, the mortality is less than one-half of one per cent. Under local the mortality should be still less than this. What major operation is safer?

Another objects because the eye may be lost. It was learned by Majendie that if the branches of the first division were cut anterior to the ganglion the animal lost the eye, but

if the section was made proximal to the ganglion the eye was not affected.

After ganglionectomy eye troubles are very common. Corneal ulcer develops which often results in total loss of the eye, even both eyes have been lost as a consequence. However, it has been discovered that keratitis is not likely to develop if the upper part of the ganglion is left. It must be remembered, whether root section or ganglionectomy be done, that the cornea and conjunctiva become insensitive and that particles of dust may enter the eye and the bacteria thereon cause infection producing keratitis, corneal ulcer and loss of the eye.

Another objection is that the side of the face may be paralyzed as a consequence of the operation. It would seem strange nowadays that such an objection could be offered to a patient by the physician. In the old days when physicians were not supposed to know anatomy such an objection was excusable—not now. There is, however, a certain amount of paralysis of the frontalis of the operated side, and a certain amount of weakness often seen in the muscles that move the upper lip or close the eye. Even in the operation that I do where the incision never crosses the facial nerve I have noted these palsies. I think they are due partly to pressure of retraction and partly to interference with one or more of the petrosal nerves. No one seems to know for certain what is the exact cause. Paralysis that have occurred in my series have recovered in about six months to a year. Those recently operated on still show some palsy.

The operation is done entirely under local anesthesia. Of course, if the patient prefers a general anesthesia I have no serious objection to doing it that way, but under local, while the operation is more tedious, there is less shock, less danger and the cure is more certain. No flap is used at all, the incision is linear, extends from the zygoma about a thumb's breadth in front of the ear backward and upward to the parietal eminence. This line is infiltrated with one-half per cent. novocain, all of the tissues are flooded including the periosteum, then on either side of the lower end of this line the tissues are similarly flooded; the incision exposes the fibers of the temporal muscle, the temporal fascia is divided at its attachment to the zygoma, both layers, so that it can be drawn forward and backward with ease. The muscle is split and retracted to expose the underlying bone. The periosteum is scraped back, the bone drilled about an inch above the base line, the opening is enlarged with rongeur, the dura is pushed upward, exposing the floor of the middle fossa. Presently the middle meningeal

artery is encountered, tied and cut and almost at once the third division is seen entering the foramen ovale; the dura covering it is incised and the root is traced upward and backward exposing the ganglion. The dura is elevated from the ganglion, continuing backward and upward and soon the root is seen entering the ganglion just above the apex of the petrous portion of the temporal bone where it can be easily cut or evulsed.

The wound is closed, usually with a small drain. This drain is removed at the end of twenty-four hours. Generally, for the first few hours there is considerable discharge of cerebrospinal fluid. The result is the permanent cure of the disease. Of course there are cases that will not be cured but it is my belief, *if the case is real tic douloureux and if the root is entirely cut or evulsed*, that the cure is absolute and permanent. There is no such thing as regeneration of the root or rather of its fibers once they have degenerated within the brain substance. This they will do if the root is sectioned or evulsed.

Note.—Since writing the above I have been saving the motor root and am surprised to note that no facial nerve palsy has appeared in any case wherein I have succeeded in preserving the motor root.

DISCUSSION

Dr. M. A. Bliss, St. Louis: All of us who live in St. Louis deeply appreciate the earnest work Dr. Coughlin has done in this field, with which I have been familiar since the first operation was performed. Dr. Bruce Carson and I undertook the first removal of the ganglion in St. Louis. In those days nothing was thought of but a general anesthesia. It is perfectly marvelous to see a patient sit up the entire time during an operation for the opening of the skull and be relatively comfortable. I do not know anything in the category of surgery that seems more remarkable to me.

There is just one word I would like to say about the diagnosis of tic douloureux. I believe the most valuable thing to do in making a diagnosis is to make an extremely careful history. The average case of tic douloureux gives a dart or two, and perhaps not another for quite a while. It may be a month or two or three, but it comes back, and each time, as a rule, that these wasp-like stings occur there is a little shorter interval between them, and perhaps more of them and more severe, until finally life becomes almost unbearable to the patient.

The other types of neuralgia, as Dr. Coughlin has told you, for some reason, although we think the nerve supply comes from the same source, are not relieved by this kind of surgery. There is a famous case in Philadelphia in which the ganglion had been removed and a second operation, undertaken to remove the last vestige of it, did not relieve the patient. Sluder did his operation and did not relieve the boy. So some of these things no one understands.

In some of these nondescript cases, the question of malignancy must always be thought of. I have seen malignancies spreading right across beneath the skull, catching the branches after they emerged. So that the study of each case before undertaking

surgery is an extremely important part of the diagnosis.

Dr. H. P. Kuhn, Kansas City: I have been very much interested in Dr. Coughlin's paper for I think there is no more fascinating subject than that of tic douloureux, which is at the beginning usually regarded by the patient as a dental disease. This is rather unfortunate as it is not a dental disease. A large number of cases are seen first by the dentist who probably extracts teeth in an attempt to relieve the symptoms.

There are a number of curious things about tic douloureux. The majority of the patients that I have seen have been to a degree deaf. It is seldom that a patient does not seem to have some disturbance of hearing where there is a frank case of tic douloureux. Whether or not the disease of the ganglion is a part of the disease which involves the hearing apparatus, I do not know. Another factor which has occurred quite frequently is what I call the "trigger" sensation. These patients can be started into a convulsion of tic douloureux by touching the sensitive spot. Tic douloureux impresses me as an epilepsy of the sensory nerve. An old gentleman had a very severe general tic douloureux; injection several times relieved him for a short time when we thought of the scheme of injecting the infraorbital branch and anesthetized the side of his nose where he had a spot that would start him off on a general spasm. When this area became anesthetic, we could not induce the convulsion in any of the branches of the fifth. Another man came in with practically all of his teeth removed but the upper bicuspids. When he would touch the left upper bicuspid with his tongue he would have a spasm. We removed the tooth, thus eliminating the place where the spasm started, and so far he has had no further trouble.

Dr. Coughlin said these patients should be subjected to alcoholic injection first, not because it will necessarily cure the patient, though we know it would relieve him for some three to six months. I know of a case where the ganglion was reached and the patient has been apparently entirely relieved, but the injection prepares him for the more serious surgical procedure later on, not only mentally—making him feel that everything has been done that is possible—but it enables an impoverished patient to regain his strength and equilibrium. Unfortunately, these cases are among elderly people and they usually come in with considerable evidence of malnutrition. If you can inject the branch, giving three to six months' period without pain, they are able to put on some flesh and gain considerable strength.

There is no question but that resection of the root is the operation of choice and if the surgeon has had enough experience, possibly he can isolate the motor and cut only the sensory root.

Dr. Caryl Potter, St. Joseph: I have been very much interested in tic douloureux, having followed Cushing's work for about three years.

I remember particularly one of my own cases in which involvement of the cornea set in following a division of the first and second roots anterior to the ganglion. The case developed a keratitis.

I believe the method of choice is attacking the posterior sensory root. Evulsion has been favored by Cushing. At first he did a ganglionectomy, but in his later work the evulsion of the sensory root has been the procedure of choice. In his large series of cases I have never seen reported an ill effect. He isolates the posterior root, and then gently evulses. In his clinic I saw very few patients injected. I believe he feels that his low mortality with evulsion of the posterior root and its

permanent effect warrants little indication for alcoholic or osmic acid injections, the effects of which are usually temporary.

His method of intracranial attack of the ganglion is practically the same as the one described in the paper by Dr. Coughlin but his outside approach is different, depending upon an incision and division of the zygoma. Personally I prefer the one in which the zygoma is divided as it gives a lower operative field through which to work.

Dr. Coughlin: I want to thank the gentlemen for the discussion.

The osmic acid injection I have had no experience with; with the alcohol injection I have had considerable experience. It is the patient's neuralgia and he must decide—he has generally had the injection done. If he wants me to try it, I will, but I won't be successful where it has been missed by good men several times in succession. There is a lot of luck about injection, and sometimes one is successful. I think Patrick has permanent success in about 25 per cent. of his cases.

If there is desire for permanent relief, root section or ganglionectomy is the only operation we can offer. The ganglionectomy I have seen and done, but I think it is a very formidable undertaking, and root section as I do it now seems to me so simple and so easy and certain that I will not try anything else until I know it is better.

I had a patient in the chair and thought I had finished the operation; in fact, I told those around about that I would demonstrate the nerve—I cut it—I thought I did, at least—I waited a few minutes and went in to clean up, and the patient screamed that I was putting out his eye. I knew I had not finished the job. If he had not been awake, he would not have had complete success in that case. The operation has a lot that is unsaid about it.

University Club Building.

THE RENAL FACTOR IN DIABETES MELLITUS

L. H. FUSON, M.D.

ST. JOSEPH, MO.

What consideration must the therapist, in the study and treatment of diabetes mellitus, give to the role played by the kidney? In the handling of diabetes it has been my experience that the renal factor stands out pre-eminently as one of the things which may make one diabetic differ from other diabetics, and to demand individual study and treatment. Diabetics are prone to postpone adequate therapy until they are forced by symptoms of complications to seek medical relief. An appreciable percentage of them, particularly the obese type above forty years of age, show the clinical findings of nephritis with hypertension, albuminuria and casts. In a small series of twelve cases seen by me in the past eighteen months, five, or 42 per cent., were of the above type. Three of these were cases with severe acidosis. The cases in this series for which therapy offered most, refused to follow out treatment for a sufficient length of time to get results. They were the younger cases and the less symptomatic. In the cases in my own series

which submitted for adequate treatment, 70 per cent. showed renal changes. Fortunately, many of the diabetics of the obese type above forty years of age placed in this class with nephritis are mild or relatively mild diabetics.

What do we do when a diabetic places himself under our care for treatment? As a rule, we are first concerned with ascertaining how much of a diabetic he is; second, with establishing a reduced sugar intake to raise the lowered sugar tolerance, always mindful that if acidosis is not already present we may induce one, or if present, aggravate it. We are frequently forced by a third factor, such as a large carbuncle or other infection, to hasten therapy along the above lines and play between two fires, namely, hyperglycemia and coma. Many times the margin of safety is quite reduced and it becomes essential to know quantitative values which indicate the true status of the case. In these cases with severe acidosis, it is just as important to know the quantitative measure of the acidosis and of the intermediary sugar metabolism from time to time as it is to know the temperature record every two hours in second and third week typhoids, if one is to direct therapy along lines of safety. It is just here, in obtaining these measures, that one may be misled if one does not take into careful consideration the role played by the kidney.

The kidney may be likened to an overflow pipe in hyperglycemia. In health, hyperglycemia and glycosuria run fairly constant. In diabetes this is not so constant. This variation of the kidney permeability for sugar, however, is small so long as the kidney is not the site of gross renal disease. As nephritis develops the renal permeability for glucose diminishes. The glycosuria may disappear and blood sugar continue to mount high. This condition may also obtain in coma cases so that a glycosuria does not assure the presence of low blood sugar. Certainly, many of our diabetics with renal changes will run high blood sugars long after the urine has been rendered sugar-free. Case reports are not uncommon in which resistant skin infections, such as long standing furunculosis associated with hyperglycemia, are treated for the skin infection *per se* without regard to the underlying cause, because the therapist has been misled by finding an aglycosuria and has not borne in mind the kidney as a possible dam with resulting high blood sugar. I make it a routine practice to do blood sugar estimations on all cases of persistent skin furunculosis and carbuncles. This retention phase of sugar as a result of kidney unpermeability is not a specific one. Other blood solids are affected in like manner. Peculiar as it may seem, there are on the other hand kidneys which behave in opposite manner

to sugar excretion. I refer here to the condition known as renal diabetes, a condition in which relatively large amounts of sugar may be excreted without increased blood sugar or symptoms characteristic of diabetes mellitus. Similar conditions prevail as regards the inter-relation of blood and urine sugar levels in experimental phloridzin diabetes. There is also a glycosuria, or rather, a galactosuria seen in pregnant women without increased blood sugar. By reason of the variability of the kidney function as regards sugar permeability, it is necessary to assume the attitude that the presence or absence of glycosuria or the amount of urine sugar does not always serve as an index to sugar levels above the kidney. It is wholly desirable to check up with blood sugar determinations in all cases to learn what role is being played by the kidney, and if it be found to vary from the normal role, the blood sugar level must be followed if one is to know the true quantitative measure of the blood and tissue sugar metabolism.

This brings me up to what I want to say about the kidney rôle in diabetic acidosis. No man treats severe diabetes without grave regard to a ketone acidosis, in cases with either normally or pathologically functioning kidneys. It is in combating this complication that the therapist's results should express his dexterity in treating diabetes. Joslin makes the assertion that every diabetic death as a result of acidosis should be charged as a crime to somebody. He infers that the crime should be charged against the physician handling the case, provided it is not a result due to the patient's failure to fully co-operate. To bring out the point I want to make regarding the kidney role in acidosis, I wish briefly to discuss the subject of acidosis and the body's method of defense against it.

Acidosis may be defined as a reduced alkali reserve in blood and tissues induced by an abnormal increase of acid substances introduced or developed in the blood and the tissues. As we know, the blood in life maintains a fairly constant degree of reaction, is slightly alkaline to litmus indicator, and when this degree of hydrogen ion dissociation is so altered as to render the blood's reaction appreciably neutral, life to the individual is no longer compatible. This equilibrium of reaction in the blood is maintained by four factors which I wish to discuss in the following order:

First: By the so-called "buffer substances" in the blood, namely, the carbonates, phosphates and the proteins.

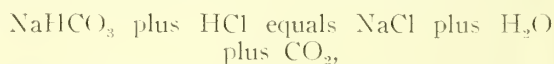
Second: By the formation of NH_3 base to form neutral salts with the acid substances.

Third: By the excretion of acid CO_2 from the lungs.

Fourth: By the excretion of acid substances by the kidney into an acid urine from an alkaline blood.

By the action of the first two means, the buffer substances and NH_3 formation, the blood can take up or react with relatively large amounts of acid substances without a change in its reaction, or, in other words, change of the degree of hydrogen ion dissociation. However, there is a limit to their capacity, and when the influx of acid substances exceeds this, the individual would come to grief were it not for the fact that these buffer substances have the facility for unloading these acids and to return to tissues for new loads. In other words, they may be likened to carriers and are efficient in a measure roughly proportional to their capacity for unloading. Their faculty for unloading acid substances is by what I have above termed the blood's third and fourth means of maintaining its constant equilibrium of hydrogen ion dissociation, which comes next for discussion.

These two factors are in nature excretory processes, the first by lung ventilation and the second by kidney excretion. The lung ventilation acts to relieve the blood of its acid substances by the excretion of acid CO_2 which may be represented by the equation,



the HCl representing the fixed acid. Of the end products of this reaction, the CO_2 is given off through expired air and the neutral salt, NaCl, is excreted by the kidney. The kidney factor is a much more important one in the matter of quantities of acids excreted. Its action may be expressed by the equation,



here again, the HCl representing the acid substance combated. The kidney passes the acid phosphate into the urine and holds back the alkali phosphate in the blood to react against further acids. This represents the kidney's capacity to conserve the alkali reserve in the blood. It readily follows, then, that any impairment of the two excretory factors working to preserve the normal blood reaction materially affects the capacity of the buffer substances. The kidney excretory factor is subject to embarrassment in renal disease and may place a tremendous handicap on the blood and tissue in the effort to combat acidosis. Marriott has shown in nephritic acidosis that the kidney breaks down in its ability to excrete the acid phosphate with the result that it is retained in the blood. Furthermore, it is common knowledge that severe acidosis itself may

impair the kidney function. Intercurrent infections do the same thing.

Now, in acidosis we are not so much concerned with the actual amounts of acids excreted as we are with the amounts that are retained. With a normally functioning kidney, large amounts of acids will be excreted with perhaps little or no retention. So with a heavy ferric chloride reaction in the urine we may have a well compensated acidosis with plenty of alkali reserve in the blood and a fair margin of safety. On the other hand, with the kidney damming up the over-flow pipe we may have little or no ketonuria with tremendous ketone retention, little or no alkali reserve in the blood, and little or no margin of safety. Likewise, a normally functioning kidney will take care of a large amount of acid substance, while a diseased one may bring the patient to coma when a relatively small amount of acids are introduced or developed in the tissues. The foregoing, I believe, emphasizes the fact that the kidney role impresses one with the importance of using other than urine determinations if one is to know the margin of safety. The alveolar CO_2 tension is a safer guide. Better still is the actual measurement of the alkali reserve by the Van Slyke method of CO_2 combining power of blood plasma. It might be said that this quantitation is needless effort and that the patient's degree of compensated acidosis can be judged by the combination of urine findings with clinical symptoms. My experience in handling these cases of severe acidosis has impressed me with the fact that such data indicates only to any degree of certainty two points on the scale, beginning acidosis and beginning coma, without any index for the middle ground. Few of us are going to treat severe cases of diabetes without getting some acidosis. Few of us are going to stay death when coma has actually developed. I believe it is safe to say that more of our cases are going to be steered clear of coma if we can have a measured index as to the stage of acidosis compensation present in these severe cases.

It is out of my own experience with this type of case that I am prompted to write this paper. When I am confronted with a diabetic for treatment, one of the first things I want to know is what role the kidney is playing along lines I have above tried to write.

Conclusions

1. Diabetics are prone to postpone adequate therapy until symptoms of complications develop, an appreciable percentage of which will be found to have associated renal impairment.
2. Renal impairment is one of the most im-

portant factors which impresses the necessity for studying and treating diabetics as individuals quantitatively rather than as a class qualitatively.

3. Renal impairment may materially reduce the individual's capacity for combating acidosis.

4. Blood quantitations are more valuable than urine figures in cases in which the kidney behaves abnormally.

120 S. 7th St.

CARCINOMA OF THE BREAST, ITS DIAGNOSIS AND TREATMENT*

CHARLES F. SHERWIN, M.D.,

ST. LOUIS

Although the breast is one of the most frequent sites of malignant disease and its easy accessibility for thorough examination affords an opportunity for early diagnosis, and modern technique yields a high percentage of cures, still many patients when first seen by us are in an advanced stage of the disease. The reasons for such disastrous delays are due to the patient's own negligence in discovering the condition, not having benign growths removed early, delay in seeking treatment unless pain is present, fear of "the knife"; or, worse still, to the advice of an ignorant physician who tells her "not to worry, it can't be cancer," "don't let any surgeon cut it," or who himself applies a cancer paste or does only a local excision when a radical operation is clearly indicated.

Propaganda such as "Cancer Week" caused many patients to seek advice early, and we believe that if similar forceful messages could be given to the public, as well as to the profession, many more cases could be cured through early treatment, and a still greater number prevented from undergoing malignant degeneration by the early local removal of benign tumors or even the entire breast in chronic inflammatory diseases.

The most frequent symptom of incipient breast cancer is a hard, irregular, painless lump which is often attached to the gland tissues or the adjacent skin, and is easily palpable with the palm of the hand, gently moving the breast over the chest wall. Rarely axillary metastases become noticeable earlier than the primary focus in the breast. Benign tumors are usually smooth, round or ovoid, freely movable, encapsulated, and do not infiltrate the gland substance or adjacent tissues. They are seen most often before the age of 35, while malignant

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

growths are more common after that age, though no decade of life is exempt.

Other important symptoms are retraction of the skin over the tumor or at the nipple as the connective tissue stroma becomes invaded. If the cancer originates in the lacteal ducts or near the nipple, a milky or bloody discharge may appear early, or a superficial ulceration may first be noticed about the nipple as in Paget's disease. Pain is usually absent until late in the disease, but is more often an early symptom in various benign conditions as abscess, trauma, fissure, mammillitis, syphilis, tuberculosis, chronic mastitis, congestion accompanying menstruation, and large, pendulous, unsupported breasts, whose weight pulls on the intercostal nerves. The routine removal of tissue before operation in definitely malignant growths is useless, and may lead to widespread metastases. For the patient's sake, clinically doubtful tumors should be considered malignant and preparations made for a radical operation. If frozen sections examined by a competent pathologist at the time of operation should prove definitely non-malignant, the plan can be changed and a mammectomy, only, done. However, one should not stake a human life altogether on the microscopic picture of a tiny, thin slice of tissue, and if the case is clinically malignant a radical operation should be done, regardless of a negative pathologic picture, because many cases of chronic cystic mastitis, subinvolution, etc., will show definite malignant areas after careful microscopic search.

The local removal of probably benign tumors is permissible for pathologic report later, but if malignancy should be found, radical operation should be performed within ten days. This procedure is not without danger, however, as I recall two cases in the past year where an apparently innocent tumor in young women was removed, found to be malignant, but they refused radical operation and sought further treatment from a local quack; one of the cases later returning in a hopeless condition. These tumors were quite small, but the possibility of malignancy and the necessity of extensive further operation were previously explained to the patient and apparently approved at the time.

In order to better understand the need of removing wide areas of adjacent tissue, the manner of growth of malignant tumors merits consideration here. Cancer appears to spread in three different ways: first, infiltration, or growth directly from the periphery as hard, nodular areas, varying with the resistance of contiguous tissues; second, permeation, or growth along the lumen of either afferent or efferent lymph channels where no resisting force is present, causing dense radiating cords,

like roots from the main tumor; third, it spreads by metastases, or the breaking off of viable cells which enter the lymph stream or blood vessels, lodge in distant nodes or organs and there reproduce the parent tumor.

Each node acts as a filter for metastatic cells and for a time arrests the spread of the disease. As these lymph vessels or nodes later become filled with cancer, the lymph seeks other channels of less resistance, normally afferent ones become efferent ones toward other glands, causing the so-called retrograde metastases seen in advanced cases.

The lymphatics of the mammary gland are superficial or cutaneous and deep or glandular groups. The central set of cutaneous vessels forms a plexus about the areola which connects with the mamillary plexus of the deep group. The peripheral set of cutaneous lymphatics drains into the axillary nodes, a few into the supraclavicular nodes, while others near the sternum connect with these from the opposite side, and join others along the anterior intercostal arteries and thence to the mediastinal nodes. These peripheral cutaneous vessels are of the greatest importance in those cases where tumors about the breast margins are attached to the skin and necessitate its extensive removal in the direction of lymph flow. The deep glandular lymphatics form a mamillary plexus which communicates with the cutaneous areolar plexus. Efferent vessels extend to the deep fascia and thence in the outer quadrant, to the axilla, directly, or along the fascia of the pectorals, serratus or latissimus dorsal muscles to all four chains of axillary nodes. From the upper quadrant, one set follows the fascia of the pectoralis major while a large lymphatic from the deep surface of the breast pierces that muscle and follows the acromio-thoracic artery to the upper axillary or infra-clavicular nodes. From the inner quadrant, a group pierces the pect. major also and joins those along the anterior intercostal arteries. The lymphatics from the lower margin of the breast extend downward along the fascia of the rectus and external oblique muscles and connect with those of the abdomen.

The recognition of the extensive distribution of these breast lymphatics and their usual early invasion in either carcinoma or sarcoma has led to the perfecting of the present ideal type of operation in which the primary tumor, its adjacent structures and outlying lymph system, are removed en masse from the periphery toward the tumor, without the need of cutting into or across a cancer laden area. Halstead, Willy Meyer, Watson Cheyne and Handley have contributed most to its perfection.

The cases illustrated on the screen are mostly from the Barnard Free Skin and Cancer Hos-

pital and include cases operated by Drs. Leighton, Fischel, Landree and myself. I regard the type of skin incision of little importance, either in freedom from recurrence or good arm function, so long as it permits removal of all skin for two to four inches from the tumor, and the skin in the path of the superficial lymphatics draining it, and which also leaves the completed scar as far out of the axilla as possible. We use the Halstead, Kocher, Rodman, Jackson, Stewart and Tansini flaps, modified as the case may require, and have found but little difference in the after results. I frequently do not use the same type of skin incision in two successive cases. The skin flaps are cut barely thick enough to remain vital, usually requiring no artery forceps on the flap side. A dissection of the subclavian triangle is not done as a routine, but only in those cases where palpable nodes are present or appear later. Occasionally in very early cases the clavicular fibers of the pect. maj. may be left, but in most cases we remove the entire muscle. Our operating technique is not new, but is more extensive than many operators I have seen. I make the incision for axillary exposure first, reflect these flaps, expose the deep fascia over the pectoral insertion, incise it along the deltopectoral groove, expose and retract the cephalic vein in the groove, isolate the pect. maj. tendon, clamp it, cut it near its insertion and detach it from the clavicle to better expose the apex of the axilla. I next cut the costo-coracoid membrane, isolate the pect. minor tendon, sever it from the coracoid process and draw it downward. I then dissect the axilla from the clavicle downward, removing vessel sheaths, fat, lymphatics and fascia of the subscapularis and upper serratus muscles en masse, bringing it toward the breast and pectoral muscles. All vessels including those to the pectorals are ligated as encountered, leaving the long thoracic nerve and vessels, but usually cutting the intercosto-humeral nerve which is often caught among involved glands.

I next complete the incisions around the breast, extending the lower end nearly to the ensiform, free the flaps widely, incise the deep fascia about the periphery of the mass, removing an area from the clavicle to beyond mid line, thence downward including the rectus sheath half way to the umbilicus, thence upward including the fascia of the serratus and external oblique, and for two or three inches on both sides of the latissimus dorsi muscle in the upper part of its anterior border. This reflection of fascia from the periphery toward the center for an inch or two, blocks all lymphatics. The entire mass is then removed from above downward, catching vessels as they appear and ligating them after-

ward. Instruments that come into contact with probable cancer tissue should be discarded or resterilized to prevent implantation metastases. If such contact is a frequent probability as in advanced cases, I prefer to do the entire operation including the skin incision and axillary dissection with the actual cautery as advised by J. F. Percy.

Primary closure is usually done, otherwise the flaps are sutured to the chest wall and Tiersch skin grafts applied at once or at a subsequent operation. A stab wound is made at the posterior inferior angle and a rubber dam drain from the apex of the axilla brought out through it and left for two to six days. All air is removed from the flaps, a moderately firm dressing applied, and the arm placed at the side with the forearm in a sling for two or three days.

I permit most patients up out of bed on the third day, encourage early use of the arm, and good arm function is readily obtained, most patients being able to fix their own hair after four or five days. Edema of the arm or forearm occurs in a few cases, especially if pre-operative swelling was present or if the axillary flap sloughed or became infected. It usually disappears after a few months. I think the intact cephalic vein is a most important factor in preventing subsequent edema. Even though the axillary vein must be sacrificed, if the cephalic be saved, edema is often absent.

While we frequently have our cases treated with X-ray after operation, we have not noticed much difference between these and the non-rayed ones. Its use when cancer had to be left behind or when recurrences were actually present, or in cases too extensive for operation has usually been disappointing. However, two recent cases, one a recurrence twenty years after operation, have apparently disappeared.

Radium is of but little service in breast cancer, unless large amounts of it are available. We have found it useful over recurrent nodules near the surface or over superficial glands. A much larger field can be treated with the X-ray than with radium with as good or even better results. At the present time, however, very early diagnosis followed at once by an extensive radical operation is the surest and safest way to treat carcinoma of the breast.

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DISCUSSION

Dr. Caryl Potter, St. Joseph: In regard to the surgical treatment of carcinoma of the lip, statistics oft quoted have shown that when no palpable glands are present, if a radical en bloc dissection of the submaxillary and submental triangles on both sides is done, you get 90 to 98 per cent. of

cures; that if a V-shaped excision only is done, there will be a recurrence in at least 45 per cent. of the cases. It seems to me that is sufficient to discard any argument against the complete en bloc dissection in all cases without palpable glands.

The essayist did not say anything about tying the facial arteries, which has been emphasized by several men as a necessary feature in the treatment. Ligate both facial arteries and do both triangles. Ligation cuts down the blood supply and inactivates the growth and the complete removal of the glands on both sides stops the danger of cross drainage into glands on the opposite side. So in all of these cases the logical treatment is a complete en bloc dissection of both triangles down to the posterior belly of the digastric muscle, and then the lip operation, including the skin, as mentioned in the paper. One of the largest clinics in this country has assumed that the V-shaped operation in addition to the glands is all that is necessary. The author showed pictures of recurrences on the chin. I saw one case with a recurrence in the skin area of the chin.

I was very glad Dr. Leighton got back to surgery on these cases and made no mention of X-ray and radium therapy, because in the last four or five years many have been swinging the pendulum to X-ray and radium therapy exclusively, much to the grief of many therapists and patients. I am not an enthusiast of X-ray and radio therapy around the neck having seen two cases (not handled by myself) of hypothyroidism develop in cases in which X-ray had been used in the treatment of goiter.

We do not know the lethal dose of X-ray and radium. These cases are cropping up in literature everywhere. I think there is necessity for thoughtful consideration before applying X-ray and radium therapy to the neck.

Another interesting phenomenon in the application of radium in one of my own cases was a peculiar stimulation of the vagus nerve. The patient's pulse went to twenty per minute.

In regard to carcinoma of the breast, I am a strong believer in the radical operation as originally advocated by Halstead. I do not believe in thinking about the skin closure when operating on these cases. At least four to five recurrences have been seen after operations in which a complete radical operation had been done with an effort to save the skin, which had resulted in recurrent cutaneous metastases. The original position of Halstead is correct; the skin closure should not be thought of; and in practically all cases—all doubtful cases, at least—a skin graft or grafts should be used. I do not see objections to a graft. I have seen recurrences, where there was no recurrence demonstrable in the axilla and none in the supraclavicular triangle, but there were recurrent metastases of the skin, and these cases mostly died from metastases in the mediastinum.

The pictures showed trabeculations from the paranchyma of the breast giving a dimpled appearance of the skin. If these are demonstrable to the naked eye, they are progressing in other portions of the skin. I think statistics will prove that Dr. Halstead's ultimate results over a five-year period are better than anyone else's doing the closed skin operation.

I enjoyed Dr. Gellhorn's paper very much. Its real value was to stimulate future investigations along this line. I do not believe the number of cases reported (thirteen) is sufficient to arrive at any very definite enthusiastic conclusions, but after these cases have been increased to two thousand or more with tabulated results they would be of great value to the profession.

IRRADIATION IN CANCER OF FEMALE GENITO-URINARY ORGANS.—The report made by John G. Clark and Floyd E. Keene, Philadelphia (*Journal A. M. A.*, Aug. 20, 1921), deals with a total of 313 cases; 112 of the patients are living and 201 dead. All patients have been subjected uniformly to 100 mg. of radium for twenty-four hours at the first application, and this dosage may therefore be considered as the standard with only an occasional exception in more than 400 cases treated up to date. To attain the best results, the first irradiation should be done under nitrous oxid anesthesia, as a more careful examination may be made, and the radium more advantageously brought in contact with the malignant areas either through radium tubes or by radium needles. Gauze packing instead of metal shields should be used for protective purposes. The process of cure passes through three stages: local destruction, connective tissue formation, and hyalinization. A hysterectomy after successful irradiation of an otherwise inoperable case is hazardous and does not promote the best interests of the patient. Results of irradiation in cancer of the cervix practically removes this class of cases from the surgical field, although we have not yet completely yielded to this point. Cases of cancer of the fundus, unless too far advanced, or unless there is a critical surgical contraindication, should be submitted to hysterectomy, followed from fourteen to twenty-one days later by a light irradiation of the vaginal fornix. Irradiation is dangerous immediately before or soon after an operation, or when employed in fresh operative fields. Frequent repetitions of irradiation are probably unnecessary and possibly hazardous, as the foregoing observations point to the fact that the chief blow is struck at the first application. The frequency of irradiation fistulas may be reduced to a minimum or almost completely avoided by the application of a well-placed vaginal pack which removes the healthy tissues from the zone of intensive emanations.

STANDARDIZATION AND PRESERVATION OF COMPLEMENT SERUM FOR WASSERMANN TEST.—Inasmuch as the serums from different guinea pigs differ greatly in fixability and in hemolytic power, E. H. Ruediger, Bismarck, N. D. (*Journal A. M. A.*, Aug. 12, 1922), says that in order to obtain fairly uniform complement serum, the serums must be selected, the good serums being used and the poor serums rejected. Breeding only guinea pigs with good complement greatly improved the author's collection of guinea pigs for this purpose in three years. Any raw vegetables, such as potatoes, cabbage or carrots, prevent scurvy and are suitable winter feed for complement guinea pigs. A mixture of raw vegetables gives the best results. The fixability of guinea-pig complement was much better in winter than in summer, which may be due to the large quantity of grass fed in summer. Frozen complement serum kept below zero Fahrenheit in the cold storage room remained active for eight weeks. Salted complement serum kept at approximately 1 C. remained active for more than four weeks.

SO-CALLED TRAUMATIC DISPLACEMENTS OF THE UTERUS.—Harry E. Mock, Chicago (*Journal A. M. A.*, Sept. 2, 1922), states that acute temporary displacements of the uterus may follow trauma, but the symptoms are so severe that relief is secured immediately, and the disability is only of short duration. Permanent uterine displacements are never due to trauma per se. Trauma may cause some exaggeration of an existing, unrecognized displacement, but careful study will demonstrate that the chief etiologic factors are some combination of the pre-existing conditions.

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EDITORIALS

CATHOLIC HOSPITAL ASSOCIATION

The first meeting of the Missouri State Conference of the Catholic Hospital Association of the United States and Canada was held in St. Louis on September 19 and 20, 1922. More than two hundred Sisters of the various Catholic hospitals throughout the State of Missouri attended. There were present representatives from every one of the twenty-two Catholic hospitals of the state.

The morning session of the first day was opened with mass, Rev. M. J. O'Connor, S.J., celebrant. The religious services were followed by addresses of welcome by the following:

Rev. M. J. O'Connor, S.J., President, St. Louis University; Rev. Charles Cloud, S.J., Regent, St. Louis University School of Medicine; H. W. Loeb, M.D., Dean, St. Louis University School of Medicine; W. W. Graves, M.D., President, St. Louis Medical Society.

The formal papers and discussions were rendered on the afternoon of the first day and the morning of the second day. The papers and the discussions were of a high order and it was indeed a privilege to be present. The topics covered were those which had to do with:

Definition of the duties of the Sisters and of the secular nurses to the patient and to the doctor.

Scientific and efficient training of the Sisters in nursing, in laboratory work, social service and the management of a hospital.

Much interest in the matters presented was displayed by those present.

The afternoon session of the last day was devoted to the formal organization of the Missouri State Association of the Catholic Hospital Association and to the election of officers for the ensuing year.

Meetings will be held annually and the place of meeting will be determined by the executive committee during the coming year.

The good results of this meeting will show themselves in a better and more uniform management of the various Catholic hospitals throughout the state and in a more perfect understanding with the members of organized medicine.

NATIONAL CANCER WEEK

NOVEMBER 12-18

No more energetic public health campaign is being waged by the medical profession at the present time anywhere than is the one, being conducted by the American Society for the Control of Cancer. Under the presidency of Dr. Charles Powers, of Denver, every state in the Union has been organized in this fight to reduce the cancer mortality. Last year, during National Cancer Week, considerable work was done throughout Missouri in the way of distributing literature, holding special meetings and having the subject brought out prominently in the newspapers. In St. Louis the campaign was so active that the cancer question became the general topic of conversation for a period of one or two weeks.

The state chairman of the American Society for the Control of Cancer, Dr. Fred J. Taussig, of St. Louis, is anxious this year to institute a state wide campaign reaching every county in Missouri. To do this we must have the co-operation of the officers of the county medical societies and it is hoped that when they receive letters from Dr. Taussig regarding the campaign these communications will be given prompt attention and co-operation. The cancer committee of the State Medical Association through its chairman, Dr. W. H. Mook, will as last year do its share to make the campaign a success.

The figures that have come to us from the United States census of 1920 show that the cancer death rate is 83.4 per 100,000 population. When we compare this with 63 per 100,000 in 1900 we must assume that there has been an actual, and not merely an apparent, increase in the spread of cancer. At present the total number of deaths from cancer in persons 30 years of age or over is greater than the number of deaths from tuberculosis.

National Cancer Week this year will be from November 12 to 18. Let us all join and make it a success in our own community. Let us spread the knowledge that in the early recognition and the prompt treatment of cancer lies the best means of effecting a permanent cure.

ST. LOUIS DEPARTMENT OF PUBLIC WELFARE PICNIC

On Saturday, September 2, the employees of the entire Department of Public Welfare, St. Louis, held a picnic in Forest Park. There are 2,630 employees in this department, serving in the various hospitals, health and welfare institutions. Arrangements were made so that each employee, whether on night or day duty, might be relieved in order to attend this picnic and participate in the many forms of en-

tertainment that were provided on the picnic grounds. Physicians connected with the Health and Hospital Divisions were well represented in the baseball game played against the men in the Division of Parks and Recreation, many of whom are young, active men and playground directors. The physicians won by the decisive score of 17 to 3.

This is the first attempt that has been made to bring all the various sections of the Department of Public Welfare close together. It has been the desire of Director of Public Welfare Cunliff to have the staff and employees of one hospital feel that it is associated with another hospital within the Department of Public Welfare. He feels that the health work is closely and intimately tied up with recreational work and that if the work of the Municipal Nurses or the Health Division is to be effective, there must be active co-operation and coordination with the work that is being done on the playgrounds.

At this picnic, many of the employees of the various institutions and divisions became acquainted for the first time and it is felt that through this acquaintanceship will come a better understanding of their duties which will tend towards finer co-operation and efficiency within the department. One does not realize the wide scope of usefulness of this very important department of the city government until one sees the large number of employees at a gathering of this sort, and remembers the long list of divisions working for the improvement of the health and welfare of the people. There was represented at this picnic the following divisions:

Health Division, with its sanitary section, fumigating section, infectious diseases, vital statistics, venereal clinic, bacteriological and chemical laboratories and general inspection service.

Hospital Division, controlling the City Hospital, Colored Hospital, Tuberculosis Hospital, Infectious Disease Hospital, Infirmary, Municipal Farm (the Training School for the Feeble-Minded), Dispensary and Clinics, Bacteriological Laboratory, City Sanitarium, Municipal Nurses.

Divisions of Legal Aid Bureau, City Jail, City Workhouse, Lodging House.

THE AMERICAN MEDICAL DIRECTORY

The Biographical Department of the American Medical Association is now actively engaged in compiling and revising the material for the Eighth Edition of the American Medical Directory. The directory is one of the altruistic efforts of the Association in the interest of the medical profession as a scientific

organization, which means, ultimately, in the interest of the public. It is a book in which are found dependable data concerning every physician licensed to practice medicine in the United States and Canada, all being treated alike. This note is inserted to ask the co-operation of those readers of *THE JOURNAL*, who have changed their residence, or their office, since the previous revision, two years ago. If there is any change to be made in the data appearing in connection with your name, communicate at once with the Biographical Department of the American Medical Association. Members of our Association, whether or not they are Fellows of the A. M. A., should send proper data to the headquarters at Chicago if any change in home or office has been made since the fall of 1920.

NEWS NOTES

DR. N. M. WETZEL, of Jameson, Mo., wishes to specialize. He will thoroughly introduce the right man for general practice in practically an unopposed field, in a good blue grass farming community. Write for particulars.

A PHYSICIAN is needed at Urbana, Dallas County, Mo., to take the place of Dr. B. W. Vaughan, who has moved to Columbia. Urbana has a population of 500, first-class high school, good farming community of Americans. Those interested in this location may learn the particulars by addressing Dr. B. W. Vaughan, 107 South Glenwood, Columbia, Mo.

THE Venereal Disease Clinic of the United States Public Health Service, at Hot Springs, Ark., is offering a course in diagnosis and treatment of venereal diseases. The course covers a period of thirty days and is given free of cost to physicians desiring to take advantage of the offer. Each class is limited to ten and the term begins on the first of each month. Applications should be addressed to the Surgeon-General, U. S. P. H. S., Washington, D. C.

A MEMBER living in the southeastern part of the state desires to dispose of his practice. A physician who is also a pharmacist would find the location very attractive. The practice extends over one-third of the county and into an adjoining county and is very remunerative. A comfortable dwelling and a stock farm of 129 acres are for sale. The roads are good; there is a good school and fishing and hunting unequalled. Any member interested in the proposition may learn the address of the doctor by writing to the secretary.

OBITUARY

CALVIN R. LIGHTNER, M.D.

Dr. Calvin R. Lightner was born in Petersburg, Pa., October 10, 1851, and died in Rochester, Minn., following a surgical operation, on August 17, 1922.

He graduated in medicine at the Bellevue Hospital Medical College in 1887, and practiced medicine in Lancaster, Pa., for one year. He moved to St. Louis forty-three years ago and resided there continuously since that time. On November 29, 1893, he married Miss Addie Elliot, daughter of Henry Elliot, founder of the Elliot Frog and Switch Works of East St. Louis. Eighteen months ago he gave up his office after forty-three years of almost constant work, during most of which he was specializing in diseases of the eye, ear, nose and throat.

I met Dr. Lightner for the first time twenty-four years ago. He was officing then on the corner of Jefferson and Washington Avenues, in the Union Dairy Building. I was a junior in the old Beaumont Hospital Medical College. From then until his death no man ever had a truer or better friend than I had in him.

Years of professional work mellowed him and added to the charming personality with which he was endowed. It has been my pleasure to know a great many medical men, but I have never met a more ideal professional gentleman nor one more devoted to his patients than Dr. Lightner. There was nothing that he abhorred more than unprofessional conduct. He cared little for pomp or show, but lived a life of simplicity and one devoted to serving those who came under his care.

He lived through some very interesting periods in American history both as a man and as a practicing physician. Frequently I have heard him tell of how the messenger came through the valley in which he was born and lived until early manhood, bringing the tidings of Lincoln's assassination, and often have I heard him describe the impression made upon the scientific world when Darwin's first book on evolution was published. He lived through the most interesting period in American medicine, that of its transition from the realm of guesswork and quackery to what it is today.

Dr. Lightner was one of the most unsatiable searchers for truth that I have ever known. Plaudits from the crowd meant nothing to him, but how to serve better today than yesterday was his creed and religion. To be simple, kind, honest and sincere; to find the truth and carry out its teachings in his conduct with his fellowmen was the purpose of Dr. Lightner's living.

I have never seen a braver soul than he. In May, 1921, upon my return from a trip to the Southwest, he called me to his office and told me of his condition. An acute attack from some abdominal trouble had kept him confined to his room for about ten days. An X-ray examination revealed a tumor of some kind in the transverse colon. He knew that at his age such a condition was probably malignant and so expressed himself to me, but did so with no more concern than he would discourse upon a political or philosophical topic of the day. He then decided to abandon his office and retire from practice, but expressed himself as wanting to do it quickly and with the least possible turmoil.

From then until he left for his summer home at Fish Creek, Wisconsin, for the last time, immediately following the meeting of the A. M. A. in St. Louis, I saw him almost every week, and frequently every day. He was the same cheerful, optimistic, courteous gentleman, although he knew that his days were numbered and that an enemy more deadly than a cobra's sting was eating away his vitals; but still he was unafraid. Nothing seemed to concern him except the loneliness of Mrs. Lightner when he was gone. For himself he had had his fling; he had played his part and played it well, and as best he could. And thus he passed on.

Yielding to the entreaty of his friends and the pleading of Mrs. Lightner, he made a pilgrimage at last to the shrine of Drs. William and Charles Mayo, but without avail. They did their best, but age and disease were greater than they, and so the end came.

Hail and farewell, great heart. I am glad I knew you and so are thousands of others for whom you lifted the burden of disease. I know not from whence you came nor whither you have gone, but I do know that memory of you and your life will remain while time lasts, at least for me.

C. V. MOSBY.

ADOLF L. KORN, M.D.

Dr. Adolf L. Korn, of Joplin, died in St. John's Hospital, Joplin, August 17, 1922, aged forty-five years. He was born in Waiblingen, Germany, in 1877 and came to America eighteen years ago. He practiced in Carthage for several years before going to Joplin where he established a pathological laboratory. Dr. Korn was a graduate of the University of Tuebingen and the University of Stuttgart, Germany, and also took a post-graduate course in pathology in the University of Pennsylvania. Early in his career he was ship surgeon on a trans-Atlantic liner of the German-Lloyd Company. He was a member of Jasper County

Medical Society, of which he was past president. He is survived by his wife, son and one sister. During his residence in Joplin he had made many friends and risen high in the esteem of the medical profession.

J. N. SCOTT, M.D.

In attempting to pay tribute to the memory of Dr. J. N. Scott, my late colleague, who died at his home in Peabody, Kansas, July 24, 1922, I will have the sympathy of the Kansas City medical profession. We shall all agree that it was a useful and honorable life and we can gather much from it; virtues which may guide our own lives.

Dr. J. N. Scott was born near Galesburg, Ill., July 29, 1870, moved to Peabody, Kan., with his parents in 1882, attended the Peabody school, entered the Kansas University in 1886, graduating from the Kansas University School of Pharmacy in 1889. He spent about two years in New Orleans, Topeka and Chicago in the study of practical pharmacy, came to Kansas City, Mo., in 1891 and entered the University Medical College and acquired the degree of M.D. in 1897.

Immediately following his graduation he took up X-ray work, taking post-graduate investigation in New York. He then went abroad, continuing studies in his chosen field. On returning to this city he at once began the practice of medicine, limiting his practice to X-ray therapy. He established the first radiographic laboratory in Kansas City. He had a genius for hard work and was the first physician in this city to engage in that line. By his kind, polite manner both to physicians and patients and conscientious attention, he immediately took a prominent stand and had a very large practice, daily seeing and treating a great many patients.

For a time he was professor of Electro-Therapeutics in the University Medical College. He was a staff member of St. Joseph and Bell Hospitals until he was incapacitated. When the Kansas University opened its Medical Department here he held the chair of Electro-Therapeutics until he was forced to resign owing to ill health.

He was nearly six feet in height, handsome and fond of outdoor life, being a golfer, a good shot, also fond of fishing, automobiling and swimming. He was a ready debater, always having high regard for the other man.

He conducted a large free clinic, where many very distressing cases came from neighboring states for treatment. They always received kindly and polite attention at all times.

While he was fond of good, wholesome stories, I never heard him take the name of God in vain or tell vulgar stories. He always

remembered that gentlemen were present, even if ladies were absent, and conducted himself accordingly. He was always thinking of others and striving to assist others in climbing up.

When he died, had every medical man or some member of their family who had received treatment at his hands, brought a flower, Convention Hall would not have been half large enough to hold the flowers.

Students were fond of him and his lectures were well attended. Dr. Scott possessed a good mind and he was keenly devoted to and enjoyed his professional work in all its branches. He was constantly called upon to read papers and speak before medical associations. He never failed to place the highest ideals before his students. Dr. Scott's personal character and very high standard of professional honor contributed largely towards the establishment and recognition of X-ray therapy as a special branch of study and practice at a time when for many reasons specialism had a low standing in the medical profession.

He diagnosed his own malady. He went to Europe to consult eminent men in regard to his condition; none of them could give him any hope. Five years ago, owing to his condition, he retired from practice and went to live with his mother at Peabody. He was a great sufferer; no one ever heard a word of complaint escape his lips. He tried to be a man at all times and did his utmost not to cause any trouble or unnecessary work for any of his friends. He discussed his condition many times with the writer and waited the end calmly, hopefully, serenely. He looked with joyful eyes upon the changing face of the world with gladness; there was no trembling. His spirit was never broken, even when the lights burned dimly. He was a Presbyterian in religion. He was a member of the Masonic Fraternity and Shrine. He was a skillful radiographer and member of the National Society of Roentgenologists. He was a member of the American Medical Association, Missouri State and Jackson County Medical Societies and Kansas City Academy of Medicine.

Dr. Scott was the eighth American physician whose death the X-ray has caused, all given on the firing line of work and early investigation for humanity, upon the altar of sacrifice, martyrs of medical science. For five years Dr. B. T. Prather, of Peabody, Kan., attended Dr. Scott tenderly, friendly and administered to his every want. Miss Gertrude Cooper, R.N., was his nurse for more than two years. The people of Peabody showed Dr. Scott many acts of kindness during his ill-

ness and when the last summons came they, with tender and loving hands, laid him away in the cemetery at Peabody.

The writer met Dr. Scott about twenty-five years ago. His name will live in the annals of X-ray, not only as the skillful and successful operator, but as the courteous and accomplished gentleman whose kindness of heart many have experienced and whose personal charm none who have known him will ever forget. He honored the medical profession. His mother and brother are still living. How short was his life, but wonderful things he beheld while he lived. He now rests from pain and labor. May he now have rest, peace and eternal life.—Dr. Hal. Foster in *The Medical Herald*.

ALEXANDER RIGHTER CRAIG

The sudden passing of Dr. Craig is a shock that makes it difficult of realization. On August 25 he left for his annual vacation, and was spending it with his family in rural Maryland. For some weeks he had not been feeling altogether well, although he treated the matter lightly, and jokingly rejected the suggestion that it was time for him to take his vacation. Finally he got away and then, out of a clear sky, came the telegram telling of his death. The rank and file of the profession probably will never know the loss which it sustains in Dr. Craig's going. It is doubtful whether the impress he has left on the American Medical Association ever will be fully realized, except by the few who have been intimately associated with him. He was so unassuming, so modest, so free from any arrogant or dictatorial spirit, that his far-reaching influence made itself known rather by end-results than by his efforts to bring about those results. Especially valuable were his counsel and advice in the various difficult problems that would come up in matters affecting the organization. To a degree far beyond the average man he was able to see the point of view of the other fellow and, by virtue of his desire to do to others as he would be done by, frequently brought harmony out of what bade fair to be discord. He not only filled the position of Secretary of the Association, but also was the secretary and executive officer of the Council on Scientific Assembly and of the Judicial Council. In the latter position particularly his exceptional tact showed itself. By his associates at the headquarters office, Dr. Craig was loved for his gentleness and unfailing courtesy. In all the years that he was with the Association, he was never known to make an unkind criticism of those with whom he was thrown in daily contact—subordinate or equal. Criticise, he

could and would, when in his opinion principles were at stake, but always in a spirit of helpfulness and service. A rare type of man he was; a re-creation of the spirit of service; a giver of himself; a man whose life was a mission; "we shall not soon see his like again."—*Jour. A. M. A.*, Sept. 9, 1922.

GEORGE F. ROOTES, M.D.

Dr. George F. Rootes, of Tebbetts, a graduate of the Missouri Medical College (now Washington University Medical School) 1883, died September 7, 1922, aged sixty-four years.

Dr. Rootes was born in 1857. He was the son of Doctor Lawrence J. Rootes, who came to Missouri in 1844 and settled at Cote Sans Dessein. He had spent his entire life in Callaway County and few were the roads in that community which he had not traveled in his efforts to relieve the ills and afflictions of his fellow citizens. He leaves a wife, two sisters and a host of relatives and friends to mourn his death. He was a member of Callaway County Medical Society and the Missouri State Medical Association for over fifteen years and his removal from our midst leaves another vacant chair hard to fill.

RUSSELL B. MARR, M.D.

Dr. Russell B. Marr, of Filley, a graduate of the St. Louis Medical College (now Washington University Medical School), 1875, died at Vernon Hospital, Nevada, September 3, 1922, aged seventy-four years.

Dr. Marr was born at Hickman, Ky., April 3, 1848. He was married to Miss Louise Alberti, September 14, 1896, who survives him. He had been a practicing physician for forty-seven years, thirty years of which had been spent in the Filley community where his untiring efforts to relieve the ills of his fellow citizens won him a place in the hearts of all who knew him. He had been a member of the Cedar County Medical Society and Missouri State Medical Association since 1908 and his loss will be keenly felt by the profession, his relatives and a multitude of friends.

Funeral services were conducted from the Christian Church of which he was a member and interment was in Wright Cemetery.

PREMATURE INFANTS.—The conditions most frequently seen in premature infants which are of especial interest to the surgeon are reviewed by Julius H. Hess, Chicago (*Journal A. M. A.*, Aug. 12, 1922), in three groups: (1) congenital malformations of the fetus due to intra-uterine diseases and deformities; (2) pathologic conditions developing at, or shortly after, birth, and (3) those developments of nutritional disturbances during the first months of life which result in secondary complications of the osseous, muscular and nervous systems.

MISCELLANY

HOSPITAL PROGRAM FOR DISABLED VETERANS OF THE WORLD WAR

Report of Rehabilitation Committee, Ninth District

St. Louis, Mo., August 19, 1922.

COL. A. A. SPRAGUE,

Chairman National Rehabilitation Committee,
American Legion,
600 W. Erie St.,
Chicago, Ill.

DEAR SIR:

The American Legion Rehabilitation Committee for District No. 9, comprising the states of Missouri, Kansas, Iowa and Nebraska, have made a careful and thorough examination of the hospital facilities in this District extending over a period of four months. In this investigation, every institution specified in this report has been personally visited and inspected by one or more members of the Committee.

The Committee convened in meeting at St. Louis on July 11th and carefully considered the results of these investigations, the needs of the District, as well as the formulation of a definite, comprehensive remedy for the unsatisfactory conditions disclosed.

In order that the supporting facts which prove in the recommendations may be properly understood, a general statement of the more important conditions and needs is herewith submitted.

Conditions

1. The Veterans' Bureau reports but one thousand three hundred and forty-eight (1,348) beds as available in this District for the care of disabled veterans. Of this number three hundred and forty-five (345) are located in Government owned institutions; one hundred and seventy (170) are in an institution owned by the government at Knoxville, Ia., used exclusively for insane patients, and one hundred and seventy-five (175) at the National Military Home (Old Soldiers' Home), Leavenworth, Kansas. The remainder, consisting of one thousand and three (1,003) beds are in temporarily leased buildings which are not appropriate for hospital use.

A Brief General Statement of the Institutions in This District

No. 57, Knoxville, Iowa. Capacity, 170. This was formerly a State Inebriate Institution leased by the Government immediately following the war and recently purchased by the Government. Extensive alterations and improvements will be necessary to convert this institution into a satisfactory hospital. Patients are being sent from other districts there.

National Military Home, Leavenworth, Kansas. This is a home and not a hospital. Veterans requiring medical treatment cannot be assigned there, because of the inadequate medical facilities and personnel. This institution is not under the administration of the Veterans' Bureau and patients hospitalized there are not under their supervision, with a consequent division of responsibility.

Hospital No. 35, St. Louis, Mo. This was formerly an almshouse or old people's home, now leased by

the Government. It is not adapted in any way as a modern hospital. It is composed of separate four story buildings with outside stairways. Meals are prepared in a detached building which necessitates food being carried out of doors. Certain wards are located in semi-basements with granitoid floors. No elevators are provided. The buildings are old, dilapidated and not entirely fireproof. This hospital is utilized for all types of cases, including neuropsychiatric, tubercular, general medical and surgical. The building in which approximately twenty insane patients are confined was formerly a warehouse. Owing to the lack of facilities, when a patient becomes violent, he must be physically restrained within the presence and view of all other insane patients.

No. 67, Kansas City, Missouri. This was formerly a hospital, now leased by the Government. Its facilities are reasonably satisfactory, except that there is no yard, grass or shade for convalescent patients.

No. 75, Colfax, Iowa. Now leased by the Government. This was formerly a summer hotel. The basement and first floor are damp. The major part of the building is of frame construction and, therefore, a fire trap. This building was never intended for, and is not suitable for use as a hospital.

The investigation disclosed that, by reason of the inadequate facilities above specified, it is continually necessary to send men into other districts for treatment as well as to numerous contract hospitals scattered throughout the district. At the date of the committee's meeting, two hundred and twenty-nine (229) insane and fifty-two (52) tuberculous veterans were in contract hospitals within the district. With reference to the condition of patients in contract hospitals, their surroundings and treatment are too well known to require supporting proof.

Requirements

2. NEURO-PSYCHIATRIC.

According to official records, it was found that there are more than seven thousand (7,000) ex-service men suffering from mental and nervous diseases; one thousand (1,000) of whom are insane. Of the latter, only four hundred and ninety-two (492) are receiving hospital treatment within the district; two hundred and twenty-nine (229) were in contract hospitals, such as state insane institutions, etc., while two hundred and sixty-three (263) were being cared for in Government owned or leased buildings.

There are five hundred and eight (508) insane veterans for whom there are no hospital facilities available within the district. Regarding the seven thousand (7,000) mental and nervous patients, it is the judgment of the Committee that immediate provisions should be made for their satisfactory treatment in order to promote the possibility of their recovery. Otherwise, a rapid increase in the number of insane patients may be expected.

According to the judgment of the medical experts of this committee, facilities based on the above number of insane and mental patients will be inadequate, because of the predicted increase in the number of such patients.

TUBERCULOSIS.

The official records show that there are six thousand (6,000) ex-service men of this district suffering with tuberculosis. Only one hundred and ninety-one (191) are hospitalized within the district, one hundred and thirty-nine (139) are in Government owned or leased institutions and fifty-two (52) in contract institutions. Many of the remainder, by reason of utter lack of facilities have been sent to distant points in the South and West to institutions

remote from their homes and families. Many veterans suffering from tuberculosis refuse to accept treatment at institutions located at such great distances. The Government owned or leased institutions in which tubercular patients are confined do not, in a single instance, meet the minimum requirements specified by the Veterans' Bureau for the treatment of such patients.

GENERAL MEDICAL AND SURGICAL.

At the present time, there are no Government owned facilities in the district, under the administration of the Veterans' Bureau, for the care of general medical and surgical cases.

Considering the number of veterans who apply for hospitalization, for treatment and the need for proper observation and accurate diagnosis to determine the existence of tuberculosis, mental or nervous disabilities, and considering further the requirement of periodic re-examination of men receiving compensation, it is the judgment of the committee that modern general, medical and surgical hospital facilities should be provided for not less than seven hundred and fifty (750) patients.

Committee's Recommendation for Hospital Program

3. In view of the deplorable conditions disclosed by the investigation and considering the present needs which have been conservatively arrived at, the committee unanimously recommends the immediate adoption and execution of the following comprehensive program:

A. *Neuro-Psychiatric Hospitals.*—Fort Des Moines is located adjacent to Des Moines, Iowa, and easily accessible to all parts of the district. This is a modern post with suitably constructed brick buildings surrounded by six hundred and forty (640) acres of land that have been inspected and passed upon by Government officials as to their suitability for hospital purposes. It is believed that as an expediency to provide the necessary care at the earliest possible date, this property should be transferred by executive order to the Veterans' Bureau, and an adequate appropriation of approximately five hundred thousand dollars (\$500,000) should be made for such necessary modifications as are required to convert this property into a neuro-psychiatric institution. It is estimated that if the transfer and appropriations were expeditiously handled, it could be made suitable for the reception of one thousand (1,000) patients in from three to four months. The separate detached buildings will lend themselves admirably to the accepted plan of gradation of patients of various degrees of disability to the end that they may each receive such medical attention, care or training as will be best suited to their individual needs.

Considering the fact that there are one thousand (1,000) insane patients of record within the district and six thousand (6,000) nervous and mental patients, the committee feels that the above represents the minimum requirements for the immediate present and that this plan lends itself economically to further extensions as they will be required.

B. *Tuberculosis Hospitals.*—In view of the six thousand (6,000) veterans from this district suffering with tuberculosis, it is the judgment of the committee that sanitarium care and treatment within the district should be provided for a minimum of one thousand (1,000) patients. It is the opinion of the committee that from the standpoint of accessibility to patients' homes, transportation, and economy, and avoidance of delay, that two units of five hundred (500) bed capacity will be preferable

to a single institution with one thousand (1,000) bed capacity. The following two projects are, therefore, recommended:

Establish at or adjacent to Kansas City, Mo., on approximately two hundred and forty (240) acres of land to be donated free of cost to the Government, a five hundred (500) bed modern tuberculosis sanitarium. This institution will adequately care for the needs of Missouri and Kansas.

Establish at an accessible point within the area represented by the eastern section of Nebraska on land to be furnished free of cost to the Government a five hundred (500) bed tuberculosis sanitarium. A proper site for this institution is now under investigation and a definite location will be submitted as soon as it can be determined upon. This institution will care for the needs of Iowa and Nebraska.

C. *General Medical and Surgical Hospitals.*—A hospital of this character is now under construction at Jefferson Barracks, Mo. It is the committee's information that the general and administrative buildings will be adequate for a five hundred (500) bed hospital, but that the first unit will be limited, by present appropriation, to two hundred and fifty (250) bed capacity. The committee urgently recommends that immediate steps be taken to secure the approval of plans to increase the size of this project from two hundred and fifty (250) to five hundred (500) beds, and that a sufficient appropriation be immediately obtained for this purpose.

The above recommendation for an addition at Jefferson Barracks to a total of five hundred (500) beds will result in a shortage of two hundred and fifty (250) beds, according to the committee's estimated requirements. For the present, the committee recommends the continuation of the lease of Hospital No. 67 at Kansas City until such time as more adequate and suitable facilities may be available within that area.

If the above program is adopted and the recommended facilities provided, it will be possible for the Veterans' Bureau to discontinue the use of all unsatisfactory leased institution as well as institutions under contract.

General Comment

Your attention is invited to the absolute harmony and approval of the entire American Legion membership—as represented by the duly elected officers in the four states of Missouri, Kansas, Iowa and Nebraska—to the hospital program above submitted.

We submit that universal public opinion throughout these four states is clearly against the policies responsible for the delay in according the best obtainable care and treatment to disabled comrades who suffer mental darkness, the scar of white plague or other mental or physical infirmities in the patriotic defense of their country.

It is our conviction that the public sentiment of our entire citizenship will endorse and commend our Government in the consummation of this hospital program as being more practical, beneficial and humanitarian than any other form of monument or memorial that can be constructed.

Respectfully,

THE NINTH DISTRICT REHABILITATION
COMMITTEE.

By H. D. McBRIDE, Chairman.

G. H. W. RAUSCHKOLB,
Secretary.

THE BUSINESS SIDE OF THE PHYSICIAN'S LIFE

The writer of this article walked into the office of a well-known Milwaukee manufacturer and popped this question at him: "How should a physician invest his money so as to keep it amply protected, and yet build up a good income fund against the future?"

"Young man," replied the manufacturer, "I don't know how you got in here, but as long as you are here, I'll ask you if you ever heard the famous recipe for rabbit pie, which begins as follows: First you catch your rabbit."

My friend the manufacturer waited for no reply but went ahead:

"It so happens that I know a good deal more about physicians than the average man, for my association with them has been extensive. There are two classes of people that in my opinion are sadly deficient in the knowledge of the day 'to catch their rabbits.' One of these is the merchant tailor, and the other is the physician. I should say they were about tied on their ability or lack of ability to get the money that is due them, and before you start talking about investing money, it would be a good idea to find out first how to collect it.

"Not so long ago I took a motor trip up through this state and Minnesota. I called upon a couple of physicians along the way who were friends of physician friends of mine. That is, we're friends everywhere off the golf course. I had quite a visit with both these fellows and they told me all about themselves and of course I did the same about myself.

"They were both of them corking fine men and appeared to have splendid practices. At any rate during the time I was with them, and in each case it was late in the afternoon, we were frequently interrupted by patients calling or phoning. One of the physicians told me, however, and I'll be jiggered if he didn't seem downright proud of it, that there were some weeks when he didn't see a nickel in cash.

"He proceeded to tell me how the farmers had been hit by the depression and so had the merchants and apparently everyone else. You'd have thought there wasn't a nickel in cash left in the town, but when I stopped at the garage to get some gas, I found they were still doing business on a cash basis as usual, and I thought I heard a jingle that sounded like cash in the two or three stores I was in.

"Oh, of course, he had a fine long list of accounts on his books. He showed me these, too, with the same show of pride. All the best families in town and county were there and some of the accounts hadn't been in balance since the Lord knows when.

"The other physician that I called on showed me a neat little packet of notes receivable that he had taken. That packet seemed to be quite a comfort to him. He admitted there wasn't much cash coming in, but look at the notes. He wasn't like 'some physicians.' He made his patients treat him in a business-like way. Well, of course, notes are a little improvement on an ordinary account in that they bear interest, but none of these notes had a lick of collateral back of them and would be poor things to hand over to one's widow.

"Here in the city things are a little better. A few physicians have gotten up spunk enough to send out a statement every month to everyone. Perhaps here and there in the smaller towns a few are doing it, too. I know one physician who started

it and quit cold because one or two patients made a caustic comment on his 'unseemly haste.' But those who stuck to their guns quickly found their patients accepting the idea readily.

"In Heaven's name why shouldn't they? Is there any more reason why the physician should wait for his money until the patient gets the notion to pay, than the grocer or the butcher or anyone else? Because the merchant tailor does business on the 'pay me when this suit wears out and you have to get another' plan, is no justification for the physician adopting the same idiotic principles. It isn't a matter of professional ethics. Ethics don't enter into this matter at all. It's simply an old habit that has come down through the generations and ought to be put away in mothballs. It's a lack of appreciation of what he is offering that permits the physician to be lax. If he were handing out meat, or groceries, or bread, or anything tangible that he had just paid good money for himself, believe me, he'd want his money in a reasonable length of time and would see to it that he got it.

"But, no, what he is offering is something intangible—the knowledge contained in his head, the skill that is in his fingers. If someone forgets to pay him, resorts to the philosophy, 'Oh, well, it's just a little time lost.'

"That's where he is wrong. No man can do business without some overhead expense. There's his office rent, his supplies, his equipment that is depreciating every day, his auto, and a score and more things. But most important of all, there's the years of time and the thousands of dollars that have gone to fit him to practice his profession. That body and mind of his won't go on forever. He must make it produce in a relatively short time enough to keep his family and himself not only while he's active, but when the time comes that he wants or has to retire.

"This subject interests me a good deal. I'm a crab about it I guess, for I think a lot of those friends of mine that are physicians. Most physicians are pretty good fellows, I find, and I wish I felt surer than I do that they were getting somewhere financially. They certainly deserve to, for their jobs are pretty much of a grind, or at least they seem so to me. I do know a few that have a definite financial program laid out, but they're only a few, and I believe this lack is general.

"I'm a business man and business men are popularly supposed to have a different code of ethics from that of the professional man. As a matter of fact we aren't so far apart. The ethics of all right thinking men are pretty much alike. As a business man, however, I couldn't tolerate the business methods that the average physicians take as a matter of course, and as a matter of fact no physician can afford to either. Your *Wisconsin Medical Journal* could devote its pages to a lot worse purposes than preaching the doctrine of better business methods to its readers, and by that I mean a systematic and regular issuance of monthly statements, insistence on prompt payment of accounts, an accurate registering of work done, and an accurate charging for work done. Finally, a simple but understandable record of the physician's cost of doing business. That one thing might do as much as anything to spur him into being a better collector.

"Remember what I told you about the rabbit pie. It goes with investments. You've got to have a margin in cash above your ordinary living expenses before you can seriously start an investment fund, and you can't build an investment fund on uncollected accounts."—*The Wisconsin Medical Journal*.

A MESSAGE TO DRIVERS OF AUTOMOBILES AND OTHER PERSONS WHO USE HIGH- WAYS THAT CROSS RAILROADS AT GRADE

MARCUS A. DOW.

General Safety Agent, New York Central Lines

Under the auspices of the American Railway Association, a nation-wide campaign is under way which is known as a "Careful Crossing Campaign." The slogan is "Cross Crossings Cautiously." The object is to save human life, and there is consequently a human appeal to this undertaking that should find immediate response in the hearts and minds of every inhabitant the country over.

Approximately 1,800 persons are killed on railroad grade crossings throughout the country each year and in round numbers approximately 5,000 sustain painful and crippling injuries. In the last thirty years the country's population has increased only 68 per cent., while fatal crossing accidents have increased 345 per cent. and injury cases have increased 652 per cent. Just about 75 per cent. of the persons killed and injured in those deplorable railway crossing accidents are occupants of automobiles.

There are at present over 251,000 railroad grade crossings in the United States. To eliminate all of those crossings by grade separation would require a sum of money in excess of twelve and one-half billion dollars. Constant work is being done in this direction, and 399 grade crossings were eliminated in 1919. But even at this rate, it would take 629 years to abolish all the crossings in the country.

The immediate need of some other method of cutting down crossing accidents is, therefore, apparent. The only remaining solution of the problem is in safety education. Accidents to railroad employees have been greatly reduced in the past few years by safety lessons designed to teach the men working on the railroads how to work safely. It is felt that if some of the spirit of co-operation which the safety movement has injected into those who work on the railroads can also be injected into motorists and others who cross railroad tracks at highways, many of those lamentable crossing accidents will be prevented.

Remember then this—a railroad crossing, no matter whether it is a protected crossing or not, is a place of danger where no chances should be taken. If you are driving a car, slow down when near any railroad crossing, look carefully both ways before entering upon the tracks, and do not proceed until you have made sure that no train is approaching in either direction. If a train is coming—wait. Do not attempt to cross ahead of it. Many lives have been snuffed out because the driver of a car thought he could beat the train to the crossing and the race was a tie. This seems to be an age of too much hurry. People don't take the time to insure their own safety. The old familiar slogan, "Stop, Look and Listen," is about the best piece of advice that was ever written. Few who heed it will come to grief. Remember it and practice it. Help the campaign along by repeating it to your friends. Pass the word along that this bit of self-caution is an ounce of prevention that will save many loved ones from the suffering and sorrow which inevitably must follow a serious grade-crossing accident. That is what is meant by the slogan, "Cross Crossings Cautiously." This remedy for crossing accidents is sure and is within the reach of everyone. It takes only a little thought, a little care, and perhaps a moment's time to use it. Will you do it? Will you help this human movement by your earnest co-operation and *stop or slow down at railroad crossings—look both ways and listen for trains and help save human life?* —*International Journal of Surgery.*

ANTIVACCINATION LECTURE BY RADIO

In the *Christian Science Monitor*, under date of July 29, 1922, there is the report of the lecture by Henry D. Nunn, manager and general counsel of the Medical Liberty League, sent broadcast by radio from Medford Hillside, Mass. In this message it is asserted "that the percentage of fatalities of smallpox epidemics has been greatly increased in the Philippines where vaccination is pre-eminently extensive and that a similar tendency is observed in Japan." Further, it is claimed that vaccination is questioned by a large proportion of thinking people, and that the great majority of those who believe in vaccination, including most physicians, take vaccination purely on faith without giving the subject any real thought.

He then propounds such questions as "what is vaccination" and "is vaccination harmless or dangerous?" He states that there were 10,000,000 vaccinations performed in the Philippines from 1905 to 1910, yet in 1918, 1919 and 1920 there were 162,000 cases of smallpox, of which 71,000 were fatal. During this latter period of three years he states that there were 15,600,000 vaccinations, but that smallpox is becoming more deadly in that country. He says that in the twenty-year period ending in 1908 there were in Japan 288,000 cases of smallpox, of which 77,000 were fatal. He then goes on to say that among our soldiers in the Philippines from 1898 to 1920 there were 737 cases of smallpox, with a mortality of 261.

This lecturer evidently feels that his most telling argument lies in the fact that some persons who have been vaccinated have developed smallpox, but he neglects to state that in the few instances where smallpox has developed in persons who have had *effective* vaccination there are, as a rule, no deaths.

He states that smallpox virus is used to produce vaccine matter in this state through cultivation in the calf. He neglects to state, however, that the smallpox virus is only used to produce the initial inoculation of the calf and the vaccine finally applied to human beings is the end-product of successive inoculations for a period of not less than five years, which is an explanation quite logical to well-informed physicians. He ignores the statements of Heiser in the *Journal of the A. M. A.*, July 1, 1922, and the letter to this *JOURNAL* by Major-General Leonard Wood, explaining the situation in the Philippines, and omits the great illustration of the record of vaccination in Manila, where smallpox was completely stamped out under the administration of this Government. The subsequent development of smallpox is perfectly well explained by the facts, for vaccination was for a period paid for at a per capita rate and the operators were more inclined to secure income than to perform vaccination. That a great deal of impotent vaccine has been used in the Philippines is undoubtedly true.

Our physicians will relish the coarse humor of the statement that physicians have not given the subject real thought. The statement is controverted with all modesty, but we can claim that Major-General Wood and Dr. Heiser are thinking men. Dr. Heiser is now in the Philippines and we shall soon have a different story.

The State Department of Health is in possession of much material on the whole subject which will probably be put before the public at an opportune time. For the comfort of our citizens it may be stated that no valid complaint has been made of the quality of virus prepared in this state during the past five years although successful results may not follow in those cases where the arm has been treated with potent antiseptic washes.

A strong argument in favor of vaccination ap-

pears in the Statistical Bulletin of the Metropolitan Life Insurance Company for July, 1922. This great organization studies the problems of life and death in a scientific spirit for the purpose of applying knowledge to the business of life insurance. If it could be found that vaccination maims and kills and does not prevent smallpox, or, further, if vaccination conveys syphilis, this company would ally itself with those who are opposed to vaccination. The following quotation from the Bulletin shows the attitude of the company:

"Students of the prevailing worldwide menace of smallpox have seen many statements from anti-vaccination propagandists that the sad experience of the Philippines in 1918 and 1919 was a repudiation of the principles of modern public health measures for smallpox suppression. These statements are mere allegations that 50,000 smallpox deaths occurred in the face of systematic, persistent vaccination. The real truth is that the practice of effective vaccination had been exceedingly lax since the general campaign of 1909 or thereabouts and that most of the 50,000 deaths occurred among the children and other elements of the population unprotected by the indifferent pursuit of vaccination in recent years in the Islands. The age statistics given by Drs. Heiser and Leach for Pangasinan and for Manila show a predominance of both cases and deaths among the unvaccinated. A careful review of these facts will make it possible for American health officers to refute the diligently circulated misstatements of the anti-vaccinationists."—*Boston Medical and Surgical Journal*.

THE ELECTRONIC REACTIONS OF ABRAMS

When the Greeks placed their wooden horse before the walls of Troy, the Trojans marveled at it as one of the wonders of the age, and accepted it, vastly to their discomfiture. When Dr. Albert Abrams, of San Francisco, announced that he had discovered a method of diagnosing disease by means of the electronic reactions of the body, he soon gathered about him a number of credulous individuals, mostly osteopaths, who accepted his doctrines and hailed him as "the greatest of all medical men."¹

These 300 or more² disciples of Abrams, scattered throughout the country, have organized classes in which, for a fee of two hundred dollars per pupil, they teach this method to others. *Pearson's Magazine* (June and July, 1922) has declared itself an ardent champion of this "revolutionary discovery," and, fortified by an article by Upton Sinclair, is prepared to force it down the throat of the medical profession.

This propaganda, written up in a sensational way and very cleverly interlarded with a few scientific and many pseudo-scientific facts, is bound to appeal to the less discriminating type of reader, especially if he suffers from some chronic ailment. The *JOURNAL* feels that the matter is of sufficient importance to be presented briefly but accurately, together with as much comment as space will allow upon the probable correctness of the Abrams hypothesis.

The essence of the theory lies in the belief propounded by Abrams "that all material things are radio-active and that if sufficiently delicate apparatus can be devised, the degree of radio-activity of all matter can be measured in such a way that when its radio-active characteristics are ascertained, it would be possible from this data to determine the actual substance being examined, without ever seeing it."³

The radio-activity of the individual is manifested by his person, by a few hairs, by several drops

of blood, or even by his handwriting! From the last, information can be gained as to the age, sex, approximate height and weight, condition of health and nationality of the writer. Even the nationality of his parents may be so determined. The radiations from an individual's handwriting pass toward him, if he is alive; if he is dead, his writing no longer "vibrates in resonance with him."⁴ This fact, however, does not prevent Abrams from ascertaining from the writings of persons long since deceased the nationality and the state of health of the writer. Dr. Samuel Johnson suffered from acquired syphilis (cerebro-spinal) and tuberculosis; Samuel Pepys, Edgar Allen Poe, Bret Harte and Henry Wadsworth Longfellow all had congenital lues.⁵

Not only the living body, but even bits of tissue hardened in 4 per cent. formalin give the characteristic reaction for the disease which is present. Unfortunately the only disease recognized thus far are carcinoma, sarcoma, tuberculosis, syphilis, colic-sepsis and streptococcemia.

The radio-activity which yields this information can be detected only by means of the reactions which it arouses in a human subject. These reactions consist in an increase in vascularity of certain abdominal organs; this manifests itself by increased dullness upon percussion over these organs, or by increased friction when a glass or rubber wand is rubbed across the overlying areas. We return to the original source for a description of the technic employed in eliciting these reactions.⁶

"Let us enter a laboratory where diagnosis is being made by electronic methods. In the subdued light, we see a young man stripped to the waist and the diagnostician is percussing various areas of his abdomen and carefully noting the variation in percussion sounds. This young man is called the 'subject' (or reagent) and is facing the geographical west, which has previously been carefully determined by means of the compass."

* * * * *

"Beside the living human 'subject,' the apparatus required is as follows: The 'Dynamizer,' which is merely a specialized type of condenser and consists of a little round black wooden box containing metallic contact points from which grounding wires run to the water pipes or radiator. From the metallic top of this condenser passes a short insulated wire to the 'Reflexophone,' which is simply a specialized type of triple rheostat, capable of measuring up to a total of 61 ohms. From this rheostat passes another insulated wire having on its free end a small aluminum electrode which is applied to the forehead of the young man being used as the 'subject.'

"Here, then, is the complete apparatus required for making our electronic diagnostic reactions; the Condenser (or Dynamizer), the Rheostat (or Reflexophone) and the automatic reflex nervous mechanism of the living human 'subject.' (Dogs and other animals have also been used experimentally and have given good results in this work.)

"PRACTICAL TESTS

"Let us conduct an experiment with a piece of cancer tissue preserved in formalin solution in a small bottle. This bottle is placed in the Condenser and the Rheostat is set at 50 which has been shown to be the vibratory rate for carcinoma. It would be entirely immaterial whether actual cancer tissue were being used or some blood from a patient having carcinoma—the reaction would be the same, because the blood itself would tell precisely the same story as the cancer tissue.

"Previous to the experiment, the abdomen of this young man has been percussed all over, in order to determine his normal degree of resonance for that particular time.

"After the electrode from the Rheostat has been placed upon his forehead, the lapse of fifteen or more seconds is required, after which careful percussion will note a beginning dullness in an area about two finger-breadths in height and extending for perhaps six or eight inches across his abdomen at the level of the umbilicus. This particular area will soon become very noticeably dull upon percussion, and if the electrode be then removed from his forehead, the dullness will within a few seconds be replaced by the previous resonance. This test can be repeatedly made and will always give the same definite reaction upon the specified area of our 'subject's' abdomen.

"Many physicians find difficulty in differentiating between the delicate shades of pitch and tone when using percussion, and it is, therefore, fortunate that a way has been found whereby they may secure their electronic reactions by other means. During some of his constant laboratory experimenting Dr. Abrams found, by the use of a pith-ball charged with static electricity, that the area of his 'subject's' abdomen which was dull upon percussion was also throwing off more energy than the surrounding tissues, due to the increased vascularity of the underlying organs. The outcome of this simple discovery was perfectly logical, as, indeed, is every other step of the entire procedure when its fundamental principles are intelligently understood. He found that if a glass rod or rubber wand, properly charged with static electricity by brisk rubbing with silk or wool, were swept over the 'subject's' abdomen it would become noticeably retarded in its progress across that particular area which was dull upon percussion—all other areas being perfectly smooth. It has been found by prolonged demonstration that the glass rod or rubber wand method is fully as accurate as the percussion method, and may even be used at times for even more delicate reactions."

Once the diagnosis is established, the disease can be checked by imposing upon it its own "vibratory rate." This is done by means of a machine called the "oscilloclast."

The treatment of certain diseases by means of particular drugs has been successful because those drugs have possessed the same vibratory rate as the disease itself. It is not claimed for electronic therapy that it will restore damaged tissues to a normal condition. All that it does is to deprive the disease of its vitality. A cancer, for example, loses its malignancy when so treated.⁷

The cleverness of the above outlined theory lies in its immunity from attack. It is so indefinite that you cannot get at it. A thorough physicist realizes its fundamental absurdities. If, however, he objects to Abrams' contention that "all material things are radio-active" Abrams replies that they may not be radio-active by ordinary standards, but when measured by his vastly more delicate tests they prove to be so.

As a matter of fact, radio-activity is as definite an attribute as fluidity. A radio-active substance sends out either corpuscular radiation (alpha or beta rays) or electro-magnetic radiation (heat, light, X-rays or gamma rays). These radiations exert perfectly well-known influences upon their surroundings. In no case do they exert influences which could be conducted along a wire as described by Abrams. If the little box which he describes as the Dynamizer were a condenser, the radiations could cause a leak of electricity between the plates

of the condenser, providing a difference of potential is maintained between these plates. The only variation of this leak which we could recognize would be a change in the amount of current. Abrams' apparatus is not adequate to make such measurements.

It is a physical impossibility for such a device to transmit anything correlated with the "vibration frequency" of the electromagnetic radiations (if there be such); the corpuscular radiations do not have the attributes of vibration frequency.

Let us assume for the moment, however, that some vibratory rate is communicated to the subject.

This vibration is alleged to produce definite, constant areas of vasodilation within the abdomen. The areas over which dullness is supposed to appear correspond with no anatomical vascular units. What organ or combination of organs, for example, can give the carcinoma dullness—"an area about two finger-breadths in height and extending for perhaps six or eight inches across his abdomen at the level of the umbilicus?"³

The "reading" of the reaction by Abrams' methods of percussion or stroking with a wand is absurdly inexact. Percussion is never an accurate method of examination, for the force of the blow is not constant. The abdomen, furthermore, is a cavity in which, owing to intestinal peristalsis, areas of dullness are constantly changing. The degree of resistance encountered in stroking the skin with a glass or rubber wand is an even less reliable indicator; the friction developed depends upon the moisture of the skin, upon the muscular effort put forth in holding the rod against the skin, and upon the protrusion or retraction of the abdomen caused by the respiration. By means of these extremely coarse methods, a reaction admittedly too delicate to be measured by the finest instruments yet devised by man, is read not only qualitatively but quantitatively.

The application of the electronic reaction to the cure of disease is completely at variance with the modern theories (Twentieth Century or Einstein's Theory) of radiation, and is not in accordance with the experimentally established facts of absorption and emission of radiation.

It may be that Dr. Abrams knows of some method of research which makes unnecessary the laborious yet nevertheless definite experiments of other physicists. In the presentation of his theory he does not describe the fundamental experiments upon which so momentous a discovery as his should be based. In regard to the results of the clinical application of his theory he again rejects that method of scientifically controlled experimentation which, up to now, has been demanded of those who would establish new theories in the world of science. Abrams was offered a ward in a San Francisco hospital for the scientific demonstration of his methods, but he refused the opportunity.

Yet, free as it is from any true scientific basis, Abrams' theory, upon superficial acquaintance, has a distinct appeal. Its proponents take advantage of the recent popular interest in Radio, and impress the reader by the free use of such terms as "vibrations," wave lengths and electrons. Many of the alleged "cures" have been performed upon a pathological condition demonstrable by no other method. Relief of symptoms can, in many instances, be attributed to coincidence or to the power of suggestion wielded by such a novel method of treatment.

The outstanding fact is this: the Electronic Theory of Abrams, in its fundamental conception, is directly opposed to many of the experimentally established laws of modern science; it cannot be ac-

cepted unless one is ready to cast aside all of the accumulated evidence of physics and mathematics in favor of a naked hypothesis unsupported by a single basic experiment.

REFERENCES

1. Pearson's Magazine, June, 1922, p. 7.
2. *Idem*, p. 8.
3. The Electronic Reactions of Abrams, F. A. Cave, D.O.M.D. (Read before the annual convention of the Eastern Osteopathic Assn., Atlantic City, N. J., April 28, 1922. Endorsed by Dr. Albert Abrams, May 14, 1922.) P. 9.
4. Pearson's Magazine, July, 1922, p. 16.
5. *Idem*, p. 15.
6. *I'de* Reference No. 3, pp. 16-19.
7. Catechism of the Electronic Methods of Dr. Albert Abrams, F. A. Cave.

—*Boston Medical and Surgical Journal*.

DR. BARKER ON GROUP MEDICINE

The organization of medical men into groups for the practice of medicine has been steadily increasing in certain parts of this country. In New England very little has been done in this direction, unless it can be said that the large hospitals, with their numerous consultations between members of the Staffs, practice group medicine.

This experiment, for such it is, excites our interest; it will not be long, we predict, before such groups will be formed in Boston. Without doubt, group medicine has definite advantages, but these will be of no avail unless certain fundamental principles in the practice of medicine are kept clearly in mind. Three, at least, of these are essential: each case must be studied carefully and scientifically, and the knowledge so gained must be applied to the patient's advantage; the patient must have confidence in the physician who has the management of his case; the cost of the examination and of the treatment must not be excessive.

One might well ask whether any of these principles are carried out by the plan suggested by Dr. Lewellys Barker in his otherwise excellent article on "The Specialist and the General Practitioner in Relation to Team-Work in Medical Practice," which appeared in the *Journal of the American Medical Association* of March 18, 1922. In discussing group medicine, Dr. Barker finds in it, as it is frequently practiced, the danger that the results of examinations by various specialists will not be so co-ordinated that the right thing will be done for the patient. To prevent this unfortunate state of affairs, he suggests that groups should have "diagnostic integrators"—"men with more than ordinary endowment in what is called 'common sense,'"—who will digest so to speak, the reports of specialists, and from them evolve a theory of treatment.

A chart presented by Dr. Barker shows the route which the patient of a group so equipped would follow. He would first be examined by an internist, who takes his history and gives him a general going-over. From there he would go to a "consulting diagnostician," who checks the main findings and decides what special examinations are needed. These examinations made, the reports are collected by a compiling secretary, who hands them to a "diagnostic summarizer." The latter rearranges the data on a single sheet and presents this evidence to the "diagnostic integrator" and the "therapeutic planner." These dignitaries (what else shall one call them?) may be one and the same man, or may be two individuals. At any rate, they, or he, constitute the final Court of Appeal; they exercise that "more than ordinary common sense" to which they owe their position, and having decided what shall be done for the patient, they turn him back for

treatment to the general practitioner or to the appropriate specialist.

This is group medicine as advocated by Dr. Barker. We doubt if such an organization exists, or ever will exist. To use a phrase borrowed from "big business," the "overhead" would be too great. This plan, if put into effect, would create an organization so topheavy that it would capsize in the very first storm. Picture the bewilderment of the patient as he, or even more as she, is being ground up in this medical mill. There would be no chance for the development of any personal relations between doctor and patient, although Dr. Barker admits that personal relationships are exceedingly "important in medicine."

The whole group revolves around the "diagnostic integrator." The others need not think, for that is his job. Yet he will be too busy to do the thinking and to get that intimate point of view without which many cases cannot be properly diagnosed. The scheme would result in the development of a few vastly overworked diagnosticians, surrounded by a coterie of men who would be expert in some method of examination, but who would not be physicians in the true sense of the word.

The plan appears to us to be inhuman, unwieldy, extravagant. We vote for the present system, in which responsibility is put squarely up to the man whom the patient selects for his physician. Every medical man should be able to tell what organ or what system of organs is chiefly involved. If he has not the facilities or the knowledge needed to investigate that particular portion of the body, let him select as a consultant that man in the community who can best help him, and not be confined in his choice to the members of a group. It may be that of several possible consultants, one is especially suited for one type of case, another for another.

The patient will then have a friend as well as a physician, to whom he may turn for advice. Is the mental side of medicine to be neglected altogether, or to be administered only by those who have studied Freud?

Let us not depart too far from the ideals set before us by Fitz, Osler, and by all of the great physicians who have made medicine what it is. The practice of Medicine is still a profession and an art.—*Boston Med. and Surg. Journal*, April 13, 1922.

INDUSTRIAL BLINDNESS

Absolute blindness is rare and of only scientific and academic importance. Practical, economic, or industrial blindness—the reduction of vision to the point where it ceases to be a practical guide and assistance in labor and recreation—is much more frequent and raises all the legal educational, economic and social welfare problems that grow out of blindness.

In adopting a declaration of what should be considered industrial blindness, the Section on Ophthalmology of the American Medical Association took an important step toward placing on a definite basis the estimation of damages and of proper compensation for industrial injuries to vision. It also established a standard that should be considered and adopted in laws providing pensions or other relief for the blind and the administration of such laws, and for the admission of applicants to schools, homes and other public institutions for the blind.

There has been great confusion and disagreement as to what constituted practical blindness. It is a matter of common observation that one person accomplishes a great deal more than another with the same visual acuity and power, as measured by scientific tests. Nevertheless, standards must be estab-

lished in order that justice may be done between man and man, and that the individual possessed of superior energy or industry may secure the proper reward of the greater effort he puts forth.

The divergence of views as to how visual disability should be estimated was apparent in the discussion that took place in the section, before action was taken on the reports from the committee that has been studying the subject. There were majority and minority reports. But with reference to the standard for industrial blindness, the committee was unanimously agreed, and no serious objection was raised in the discussion to the standard suggested, that the eye or the person with less than one-tenth vision, say 20/220, should be regarded as industrially blind.

This subject has long claimed the attention of ophthalmologists, and the committee above referred to had considered it for several years before offering a tentative report last year, which was referred to local ophthalmologic societies for their consideration and discussion. After such prolonged study and consideration, the unanimous adoption of this standard should be regarded as giving us a fixed basis for laws, rulings and practice with regard to the blind and their care, and the fixings of economic relief.

If ophthalmologists and their societies will at once adopt and advocate the acceptance of this standard, it will help to bring order out of confusion, and promote uniformity of practice and statistics that has been sadly lacking. In one state the sentimentalists charged with the administration of a blind pension law have ruled that vision of less than five-tenths should be considered "blindness," entitling the applicant to a pension. It is not surprising to find under this administration, the principal city of this state is paying as much for blind pensions as a city ten times as large working under an essentially similar law in another state, but with a more reasonable standard for industrial blindness.

The problems that have to be worked out and dealt with in regard to partial destruction of the visual function are numerous and complicated. But very little progress toward their solution or intelligent discussion was possible until some standard of what should be regarded as industrial or economic blindness was agreed upon. Starting from this point, it becomes practical to consider how loss of vision in one eye, loss of binocular vision and loss of part of the visual field should be regarded. Then should a certain impairment of visual ability be similarly regarded in every citizen, or should occupation, age, previous earning power, etc., be considered in awarding compensation. With 48 different state legislatures to deal with these questions, there is prospect of confusion in laws and practices for a long time. There is still great need for intelligent enlightened leadership in regard to these matters on the part of ophthalmologists—*Editorial Am. Jour. of Ophthalmology*.

EFFECT OF REPEATED ADMINISTRATION OF ANESTHETICS ON BLOOD CATALASE.—An investigation was made by W. E. Burge, Urbana, Ill. (*Journal A. M. A.*, Aug. 12, 1922), to determine the effect of repeated administrations of anesthetics on the blood catalase. The animals used were rabbits, and the anesthetics, chloroform and ether. The effect of the repeated administration of ether and chloroform was to lower the catalase content more and more after each successive administration, chloroform being more effective in this respect than ether. No rabbit survived more than three fifteen-minute periods of chloroform anesthesia; whereas nine of twelve rabbits survived the five periods of ether anesthesia, and are in good condition at present.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
Montgomery County Medical Society, Dec. 15, 1921.
Chariton County Medical Society, Dec. 23, 1921.
Webster County Medical Society, Dec. 27, 1921.
Clark County Medical Society, Jan. 13, 1922.
Reynolds County Medical Society, Jan. 17, 1922.
Camden County Medical Society, Feb. 8, 1922.
Schuyler County Medical Society, Feb. 10, 1922.
Perry County Medical Society, Feb. 13, 1922.
Vernon County Medical Society, March 24, 1922.
Pulaski County Medical Society, March 31, 1922.
Atchison County Medical Society, March 31, 1922.
Laclede County Medical Society, April 1, 1922.
Christian County Medical Society, May 9, 1922.
Oregon County Medical Society, May 29, 1922.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society convened in the Ted McCadeen Hall in Harrisonville, the afternoon of September 14, 1922. Minutes of the previous meeting read and approved. Visiting physicians present: Drs. H. E. Pearse, O. H. McCandless, and C. C. Conover, of Kansas City; Drs. L. J. Schofield, G. W. Thompson, and O. B. Hall, of Warrensburg; Drs. S. A. Murray and G. W. Harris, of Holden, and Dr. George Osborne, of Pleasant Hill. Members of the county organization who were present: Drs. R. D. Ramey, H. Jerard, T. W. Adair, B. B. Tout, H. A. Brierley, L. C. Snell, W. A. Moore, D. S. Long, A. R. Elder, J. S. Triplett, and M. P. Overholser.

The scientific program was opened by Dr. H. E. Pearse, of Kansas City, who gave the Society a practical and scientific discourse on the late methods of treating fibroid tumors, emphasizing the modern medical means of preventing these growths by the early administration of organic extracts of the thyroid, mammary, and pituitary glands. The doctor cited cases under his observation and treatment where these tumors were checked in their growth and in some cases where they disappeared entirely through these medical measures. This method of treatment was a revelation to most of the physicians present and the doctor was very highly complimented on his conservative stand in the treatment of these cases. X-ray and radium were considered among the valuable curative measures in many of these chronic cases, and in some cases surgery was the most satisfactory treatment that could be recommended. After an extensive discussion of this subject, Dr. O. H. McCandless presented in a very clear and practical way the classification and modern treatment of the various forms of goiter, stating that in cystic and malignant types of goiter surgical removal followed by X-ray or radium treatment gave the most satisfactory results. In the exophthalmic type of goiter the importance of basal metabolism was discussed and also the benefits to be derived from X-ray radiations. Dr. C. C. Conover then followed, favoring the society with a scientific talk on the relation of abnormal conditions of the heart and obstinate constipation and dilated colon. The facts pointing to the direct association of these two conditions were presented so clearly and plausibly, that the doctor's talk proved to be a most interesting and practical presentation of this subject to the physicians present. All these subjects pre-

sented by the visiting physicians were illustrated and important facts demonstrated by lantern slides.

Dr. L. J. Schofield, of Warrensburg, councilor of this district, followed with an instructive and practical talk to the members on the subject of co-operation of physicians, pointing out the many benefits to be derived by the profession and the public in the good will of medical men to each other, more evidences of a spirit of loyalty of physicians to one another, and a combination of their forces, knowledge, experience, skill and technique in their professional work in a community.

The last paper read was on the subject of "Blood Pressure," by Dr. H. Jerard, which proved to be a very scientific paper. The author of this paper dealt with the many phases of blood pressure found in abnormal conditions of the heart and arteries. The doctor took up very exhaustively the significance of the varied abnormal blood pressures found in the clinical examination of patients and disclosed, in the interpretation of these blood pressure findings, the valuable clinical knowledge to be derived by this important means of diagnosis, more clearly and more extensively than any paper on this particular subject ever presented to the Cass County Medical Society.

All of the above papers were extensively discussed by many of the physicians present. It was stated by some members who attended this meeting that it was the most interesting and beneficial meeting ever held in the history of the Cass County Medical Society. The members endorsed the plan of holding a tuberculosis clinic under the direction of the State Tuberculosis Association at some future meeting.

After receiving the application of Dr. Geo. Osborne, of Pleasant Hill, for membership in the Society, the meeting adjourned until its next regular session in December.

M. P. OVERHOLSER, M.D., Secretary.

LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society met in Odessa, November 7, 1921, and elected the following officers for the ensuing year: President, Dr. E. M. Moore, Corder; first vice president, Dr. G. W. Frendall, Lexington; second vice president, Dr. R. C. Schooley, Odessa; secretary-treasurer, Dr. J. Q. Cope, Lexington; censor for three years, Dr. C. T. Ryland, Lexington. Besides the election of officers and some routine business no other business was transacted or scientific program rendered.

Meeting of December 13

On December 13 the Society met in Higginsville in the Arcade Hotel at 8 o'clock and twenty members sat down to a bountiful turkey dinner. After the dinner was over every member was called on for some remarks for the good of the Society. Each responded with willingness and at the close of this part of the program our members showed decided signs of coming out of our long sleep brought on by the war activities.

Then Dr. Bohan, of Kansas City, delivered a lecture on peptic ulcer of the stomach and allied conditions. He showed a chart in his talk so that the subject was covered thoroughly and it did not become "just a talk." His lecture was of a very high order and was instructive, equaling the instruction heard in any university. We are looking for more lectures like that one.

Meeting of January, 1922

The Society next met at Lexington at the new Lexington Hospital. The weather was bad, but we

had eleven members present. Dr. Wood, of Kansas City, gave an illustrated lantern lecture on the vitamins. This proved a very live and interesting subject to the practitioner. It was a good lecture and all were well paid for coming to hear it.

At the conclusion of this number, Mrs. Shinn, the superintendent of the hospital, served a very delightful lunch to all in attendance. This was a treat to the doctors by Mrs. Shinn. We have each told her several times how good it was. The Lexington doctors then held a clinic at the hospital until the members were compelled to leave for home.

Meeting of February 14

February 14 the Society met at Odessa. The weather was again bad, and the attendance was small. At this meeting Dr. Schooley, of Odessa, read a paper on the prevention and treatment of pneumonia, and Dr. Liston read a paper on Vincent's angina. Both were excellent papers and deserved a good hearing.

Meeting of March 14

The Society met again at the Arcade Hotel, Higginsville, at 8 o'clock p. m., March 14. The doctors of Higginsville had invited the Society to a banquet dinner and they came prepared to have a good meeting. Yes, they were prepared to have a good meeting. From all appearances they had prepared since breakfast that day, and they had it for about one hour. Then they adjourned to the hotel parlors where they listened to a very instructive talk by Dr. J. E. Stowers, of Kansas City, on the subject of inoperable cancer of the uterus and its treatment by X-ray and radium. We feel indebted to Dr. Stowers for this practical and useful talk. After Dr. Stowers had concluded, all of the members took part in a general discussion of the subject. Altogether it was a fine meeting.

No Meeting in April

Owing to continuous rains in April no meeting was held in Lexington on the date set for it.

Meeting of May 9

On May 9 the Society met in Odessa. There were eleven in attendance, I believe. This meeting was to be a clinic and cases were presented by Drs. Allen and Mills, of Odessa. I don't want to find fault with Allen and Mills, but they treated the rest of us as though they thought we were New York and Boston specialists. They warned us what they were going to do but we thought they were just in fun. Then they pulled all that high-brow stuff on us. We said "Uh-huh" and "Yes" to all they suggested, but we did not understand much that they were saying. I studied up on the cases after I came home and found out that they knew what they were talking about. They presented some rare cases and were up on them, too much so for the rest of us. We forgave them and went home.

Meeting of June 13

The next meeting was at Higginsville on June 13. This meeting was also a clinic with case reports and papers. Dr. Hunker presented a case of mitral stenosis. Dr. Kopenbrink read a paper on general anasarca and discussed a recent and very interesting case of that condition in his own practice. Dr. Carson Davis read a paper on the subject of interstitial nephritis. These were all well presented, practical and well worth hearing.

At this meeting it was decided that we had no fee splitting in our county. A committee was appointed to take up with the county court the subject of establishing a county hospital.

Meeting of July, 1922

The next meeting was held at the Arcade Hotel at Higginsville at 8 p. m. This was the Odessa meeting, but the Odessa doctors asked that it be held in Higginsville. We again sat down to one of those well-filled tables that Higginsville is noted for. We also maintained our reputation for eating and lost not a man. After several attempts we had succeeded in having Dr. E. G. Mark, of Kansas City, to be with us. Dr. Mark gave us a lecture on the kidneys and illustrated his talk with lantern slides. This touched a high mark in our series of good lectures and Dr. Mark is to be congratulated on his success as a medical lecturer.

The Society adjourned to meet next month at Higginsville.

Out of a paid up membership of twenty-four and a possible membership of thirty we have maintained an average attendance of twelve.

We also went out on primary day and were active in defeating Senator Proctor for United States Senator.

J. Q. COPE, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society held their regular monthly meeting at Moberly, in the Chamber of Commerce rooms, Tuesday evening, September 12, 1922, with the following members present: Drs. G. O. Cuppidge, R. D. Streeter, L. A. Bazan, S. P. Towles, F. L. McCormick, L. O. Nickell, S. T. Ragan and C. H. Dixon, of Moberly, and G. M. Nichols, of Higbee. The president, Dr. C. T. Ragan, called the meeting to order.

A splendid paper was presented by Dr. G. M. Nichols on "Intestinal Stasis."

A round table discussion of the various and best methods of treating local infections brought out many valuable points for the members.

The next meeting will be held in Higbee the second Tuesday in October.

C. H. DIXON, M.D., Secretary.

BOOK REVIEWS

TREATMENT OF INJURIES OF THE PERIPHERAL SPINAL NERVES. By Sir Harold J. Stiles, K.B.E., F.R.C.S. (Edin.), Regius Professor of Clinical Surgery, University of Edinburgh, etc., and M. F. Forrester-Brown, M.S., M.D. (London), formerly Surgeon Edinburgh War Hospital. London: Henry Frowde and Hodder & Stoughton, Oxford University Press, American Branch, 35 West 32nd Street, New York, 1922. Price, \$4.30.

This is one of the excellent series of Oxford Medical Publications. It is a study drawn from the experience of the distinguished writers in the Great War, and intended for the general surgeon who may be called upon to deal with an occasional case of peripheral nerve injury. It is no less valuable to the neurologist.

The writers say modestly that most of their facts can be found elsewhere, but the reviewer has seen no single book on the subject which contains so much information so well systematized and so clearly expressed.

The book consists of three parts the titles of which seem inadequate. The first part is on general considerations, such as anatomy, diagnosis, types of lesions, indications for operation, prognosis and after-treatment. The second part deals with the surgical treatment of injuries of special nerves. The third part is a treatise of thirty pages on tendon transplantations.

One may mention as of particular value the section on anatomy, the list of instances in which the function of a paralyzed muscle may be substituted by others, and the table of the order of recovery of various nerves after suture.

E. T. G.

THE PRINCIPLES OF ELECTROTHERAPY AND THEIR PRACTICAL APPLICATION. By W. J. Turrell, A.M., M.D., B.Ch. (Oxon.), D.M.R.&E. (Cantab.). Physician in Charge of the Physiotherapy Department, Radcliffe Infirmary, Oxford; Vice President, Electro-Therapeutic Section, Royal Society of Medicine; Vice President, British Association of Radiology and Physiotherapy; Honorary Fellow of the American Electro-Therapeutic Association. Henry Frowde and Hodder & Stoughton, American Branch, 35 W. 32nd St., New York. Price, \$3.85.

Part one is devoted to the therapeutic action of current electricity. Chapter one, the constant current. Chapter two, interrupted currents of low frequency. Chapter three, interrupted currents of high frequency. Chapter four, currents derived from the static machine.

Part two takes up the therapeutic action of radiant energy. Chapter one, light and heat; followed by ultra-violet radiation, and the X-rays. The author explains a similarity of the therapeutic action of radiation from X-ray tubes and radium.

Part three is concerned with electro-diagnosis, the author concerning himself principally with peripheral nerve lesions.

Part four explains the action of electro-therapy and some of the diseased conditions for which it is applied, and indicates the type of case suitable for electric treatment. The part is divided in the following headings: The general principles of electro-therapy; Diseases and injuries of the muscles, ligaments and joints; Diseases and injuries of the nervous system; Diseases of the circulatory and respiratory systems; Diseases of the digestive system, and of nutrition; The genito-urinary system; Diseases of the blood and the glands; Diseases of the skin; The diseases of the organs of special sense; Electricity as a surgical agent.

E. H. K.

SURGICAL CLINICS OF NORTH AMERICA. Vol. 2, No. 2, San Francisco Number, April, 1922. Published bi-monthly by W. B. Saunders Co., Philadelphia.

This number comprises cases from sixteen clinics in San Francisco, descriptive of a large variety of conditions. A very interesting account of spinal cord tumors is reported from the clinic of Dr. Howard C. Naffziger. The report of a case of enterolith in the clinic of Dr. John F. Cowan is illuminating and is accompanied by a comprehensive discussion of the literature. The book contains 592 pages.

CLINICAL ELECTROCARDIOGRAPHY. By Frederick A. Willius, B.S., M.D., M.S. in Medicine. Section on Clinical Electrocardiography, The Mayo Clinic, Rochester, Minnesota, and The Mayo Foundation, University of Minnesota. With 185 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. 188 p. Price, \$5.00 net.

This volume of moderate size offers much that is of interest and useful to the man interested in the heart and graphic measures. The first three chapters, dealing briefly with physiologic considerations, technic, and the normal electrocardiogram, are simple presentations of the subject.

The fourth chapter has to do with the mathematical basis of electrocardiography and presupposes a knowledge of mathematics possessed by few into whose hands the book will fall. It is short and left with the reviewer a poignant regret that he could not comprehend it; no fault of the author. From this point on the treatment of the clinical auricular fibrillation seems rather fragmentary. No mention is made of curves taken from the chest wall.

This book occupies a middle ground between Lewis' small volume on "Clinical Electrocardiography" and his larger treatise on "The mechanism and Graphic Registration of the Heart Beat." It is a real addition to the growing literature on this subject.

L. S.

BOWEL DISEASE IN THE TROPICS. By Sir Leonard Rogers, C.I.E., M.D., F.R.C.P., F.R.C.S., F.R.S., I.M.S. (Retired). Oxford University Press, American Branch, 35 W. 32nd St., New York.

The author of this book is one of the greatest clinicians of our time. His work has been done on tropical diseases which do not fall within the scope of practitioners in temperate climates.

The present volume is a rearrangement and collection of earlier and separate books on cholera and dysentery and some papers on sprue and bacillary dysentery. It is written in a style of particular distinction, fascinatingly interesting and at times colloquial. The account of the states of mind which led the author to arrive at his most valuable discoveries—the use of hypertonic intravenous saline transfusions in cholera, which reduced the mortality of cholera one-half, and the use of emetine in amebic dysentery—are recounted in detail and are a part of medical history. Anyone interested in the processes by which medicine actually advances rather than zigzags is recommended to the perusal of these chapters.

L. C.

RADIUM THERAPY. By Frank Edward Simpson, A.B., M.D., Professor of Dermatology, Chicago Polyclinic; Adjunct Clinical Professor of Dermatology, Northwestern University Medical School; Attending Dermatologist to Mercy Hospital, Alexian Brothers Hospital, Henrotin Hospital, etc. With 166 original engravings. Publishers, C. V. Mosby Company, St. Louis, 1922.

The work is a fairly exhaustive treatise on radium, its origin and chemical nature, the radio-active substances; radium emanation for therapeutic use and the method of measuring its gamma ray activity, the preparation of the emanation; measurement of the gamma ray activity of the emanation tubes; radiation from radium and its decay products occupy five chapters of the work. They are presented in such a way that they are made understandable to one wishing to take up radium therapy.

Absorption and filtration of rays is fairly presented. The absorption of gamma rays in water, the physical and chemical effects of radium rays

form two chapters. The reaction of the radium is not forgotten. Two chapters are devoted to the biologic effects of radium rays. The therapeutic apparatus, the dosage, the technic of radiation are given in separate chapters. Radium of various diseases, such as surgery, gynecology, dermatology, and diseases of the ductless glands, and radium in internal medicine are presented in separate chapters. Professional injuries due to radium with the local and constitutional effects are explained.

The bibliography is fairly exhaustive. The illustrations and mechanical work are good.

The reviewer has had pleasure and benefit from the work.

E. H. K.

ARTERIAL SCLEROSIS. A Consideration of the Prolongation of Life and Efficiency After Forty. By Louis Faugeres Bishop, M.A., M.D., Sc.D., F.A.C.P., Professor of the Heart and Circulatory Diseases, Fordham University, etc. Oxford University Press, American Branch, 35 West 32nd St., New York.

This book is a reprint of the first edition, which was published in 1914. It offers nothing new on the subject and is a poorly written review of what can be found in any good text-book on arteriosclerosis. None of the most recent advances are discussed. The author repeats himself frequently and reports at random a few scattered cases from his practice.

His theory is that autointoxication or accidental sensitization to particular proteins is the probable factor in the etiology of arteriosclerosis. He advocates a low protein diet as the best treatment.

He describes at considerable length the various kinds of cheeses, their composition and methods of preparation. An entire chapter of about forty pages is devoted to this subject and would be an excellent chapter in any book on dietetics.

One could do much better by reviewing the subject in any good text-book on the practice of medicine.

A. C. H.

DISEASES OF WOMEN. By Ten Teachers. Under the Direction of Comyns Berkeley, M.A., M.D., M.C. (Cantab.), F.R.C.P. (Lond.), Obstetric and Gynecological Surgeon to the Middlesex Hospital, etc. Edited by Comyns Berkeley, H. Russell Andrews, J. S. Fairbairn. Illustrated. Second Edition, 641 pages. New York: Longmans, Green & Co., 1922. Price, \$10.00.

This very attractive volume is a companion to "Midwifery, by Ten Teachers," published by the same company and which has met with a welcome by the English speaking profession.

While each subject has been written from the viewpoint of its author, it escapes the just criticism which usually follows collective authorship by having been gone over in joint sessions several times and subjected to general discussion by the board of editors, parts rewritten so as to partake of the general consensus of views, representing the opinions of all the writers in the corps.

As a wider outlook on the phase of etiology is to be suggested in diseases of women by a consideration of the part played by psychology in the manifestation of pelvic pathology, a valuable chapter is added covering the estimate of the importance of study of the character, temperament and life of the individual patient.

Much new matter has been added and still the volume is not made more bulky than the first edition, the result of careful condensation and elimination.

G. C. M.

THE GLANDS REGULATING PERSONALITY. A Study of the Glands of Internal Secretion in Relation to the Types of Human Nature. By Louis Berman, M.D., Associate in Biological Chemistry, Columbia University; Physician to the Special Health Clinic, Lenox Hill Hospital, New York: The Macmillan Company, 1921. Price, \$3.50.

There is one thing about this book of Dr. Berman's that cannot be disputed and that is, that it is interesting reading. The reviewer also believes that it is worth while. As to its scientific value—well it is probably just as scientific as any brilliantly suggestive book may be. As scientific, let us say, as Ehrlich's side chain theory. And we all know the remarkable work, and sound work, that had its basis in that fantastic hypothesis. Without attempting a general review, let us touch some of the points in this volume.

We can conceive of the brain as a factory equipped with workmen and machinery. Now the size of a factory, its equipment and output is determined by a directorate, and so it is in the human body. "The growth of the brain, its size, number of cells and convolutions and the speed of its chemistry is determined by a directorate made up of the adrenal cortex, thyroid, thymus and pituitary. Thought, memory and imagination are controlled absolutely by this directorate." Man possesses a body just as he may have a motor car but the glands can put his body out of commission through an infection, a blow or even a worrisome thought just as his chauffeur can run his car into a lamp-post.

If you are tall and thin and remain thin, no matter how much food you consume, it means your sella turcica is roomy so that there is plenty of space for the pituitary to develop to a large size. If the bony container is small, there is a tendency to undersize and obesity. Moreover, look out for the undersized person, for with this lack of development of the glands there is apt to be moral and intellectual inferiority. The pathological liar is only a man with an underdeveloped pituitary. The woman with manish habits and looks and characteristics has too much adrenal cortex (bearded lady, etc.). Anger and fear are only expressions of medullary adrenal activity. Cold feet, worry and weepishness are only a sign of lack of this activity. The chiropractors, osteopaths, Christian Scientists and like cults live on the people who are more or less shy in medullary adrenal secretion.

The author would not have anyone tell you that beauty is only skin deep; it is gland deep. If you don't believe it, compare the bright eyes, clean white teeth, symmetrical features and rosy cheeks of the temperamental thyroid-centered type of individual to the dull, animal, ogre cretin, with coarse skin, shaggy hair, watery eyes, decaying teeth and drooling tongue. It is Beauty and the Beast, and yet it is only thyroid activity and thyroid lack—the Beast may be transformed by a feeding of thyroid tablets and the Beauty transposed by a surgical removal of the thyroid gland. Another bright saying we have to dispense with is that "man is as old as his arteries." What we mean is that man is as old as his elastic tissue. As elastic tissue is created, or at least preserved, by internal secretion, we must say "a man is as old (meaning he is as young and fresh) as his ductless glands."

The pituitary deficient woman gets fat but has a good time just the same ("fair, fat and forty"). When the thyroid deficiency woman gets fat, she gets dull and stupid. The "live wire" is thyroid plus. The "angel child" is thymus plus.

The status lymphaticus cases are of great interest. These people die suddenly from trivial causes (a tap on the jaw, a local anesthesia, etc.). Many of

these people are degenerates (Oscar Wilde). Many of them are criminals. All of them are liable to commit crimes of passion. Drug addiction is common. Status lymphaticus is practically constant in suicides. With a driving thyroid or pituitary, these individuals may become eccentric geniuses. From the types described, the author goes on to quote examples of the importance of the internal secretions in history. "The rise and fall of Napoleon followed the rise and fall of his pituitary gland." Nietzsche and Charles Darwin were pituitary types with weak adrenals. Julius Caesar was pituitary-centric.

So in fiction the striking characters of all popular novels are endocrine types. Dickens' books are full of them; nor are they lacking even in Sinclair's "Main Street."

In regard to rejuvenation, one might conclude from the author's remarks, that transplanting testicle into a senile individual would be as useful as putting a new storage battery into an old automobile that had no ignition system.

Among the problems that the author advances for our consideration is that of child culture. The educator must understand the gland capacity of his pupil. So in later life in industry, business and profession, the biologist must become the consultant. Thus we may eventually see college admissions determined by the diagnostic laboratory and striking industrial workers referred to the Washington (D. C.) Clinic for Ductless Gland Disorders.

R. L. T.

DISEASES OF THE SKIN. By Henry H. Hazen, A.B., M.D., Professor of Dermatology, Georgetown University; Professor of Dermatology, Medical Department of Howard University; Sometime Assistant in Dermatology, Johns Hopkins University; Member of The American Dermatological Association. Second edition, of 609 pages, with two hundred and forty-one illustrations, including two colored plates. C. V. Mosby Co., St. Louis, Mo.

The first edition of Hazen's book, which appeared a few years ago, proved to be one of the most satisfactory and dependable, as well as popular, volumes on dermatology ever published in the English language. Written by a skilled dermatologist of wide experience and excellent judgment, who thinks clearly and well, the book has proved a safe and reliable guide for the student and the beginner, as well as for the more experienced practitioner and the specialist.

While the various subjects were presented briefly and concisely, none of the important points were neglected. The chapters on treatment were especially noteworthy. Whenever Hazen recommends a remedy, you may rest assured that that remedy is one which will get results.

What has been said of the first edition holds true in the second. The same general arrangement has been followed. Much new matter has been included. The literary style is most admirable, and the press work good.

The book is one which will appeal to every student and practitioner who is interested in cutaneous medicine.

R. L. S.

THE SURGICAL CLINICS OF NORTH AMERICA. August, 1922. Volume 2, Number 4, Boston Number. W. B. Saunders Company, Philadelphia and London. Published Bi-monthly. Price per year, \$12.00.

This is the Boston Number and contains clinics given at the Massachusetts General Hospital, Free Hospital for Women, Carney Hospital, Boston City Hospital and Peter Bent Brigham Hospital.

THE PRACTICAL MEDICINE SERIES. Volume II, General Surgery. Albert J. Ochsner, Editor. Series 1921. Chicago: The Year Book, Publishers. 625 pages.

The striking feature of this little volume is that the subject matter discussed represents a return to normal proportions. As stated by the editor, surgical literature which is reviewed in this year book, no longer is composed of analyses of various numbers of war injuries, but contains a great wealth and variety of valuable observations of the surgical conditions of civil life. To the reviewer, the editor appears to have outdone himself in presenting each subject considered with clarity and unusual discernment in his selection of subjects reviewed. In general arrangement this volume corresponds to the volumes of previous years. The various chapters give a comprehensive study of the literature of the year dealing with the subject matter considered. It is particularly refreshing to observe the amount of space and excellent presentation given to the subjects of surgical diseases of the nervous system and to malignant tumor disease. Illustrations are freely used to clarify the text. In fact, it is amazing what a fund of information is to be found between the covers of this valuable little book.

E. F.

1920 COLLECTED PAPERS OF THE MAYO CLINIC, ROCHESTER, MINN. Octavo of 1,392 pages, 446 illustrations. Edited by Mrs. M. H. Mellish. Philadelphia and London: W. B. Saunders Company, 1921. Cloth, \$12.00 net.

This volume continues to show the same high-class collection that we are accustomed to see from the Mayo Clinic. The papers by W. J. Mayo include one on Calloused Ulcer of the Posterior Wall of the Stomach and one on Hemolytic Jaundice, that are particularly valuable contributions. We also find from the same author his observations on surgery in South America and the Canal Zone.

From C. H. Mayo there are five clinical papers dealing with cholecystectomy, enterostomy, gastric and duodenal ulcers, thyroid disease and tuberculous peritonitis.

The rest of the volume contains papers by various members of the staff and covers all varieties of work.

The reader of this volume can easily become acquainted with the present status of the work at the Rochester Foundation and will appreciate the great work that is being done there.

M. B. C.

LES ULCERES DIGESTIFS. Par, Paul Carnot, Professeur à la Faculté de médecine de Paris, Médecin de Beaujon, Paul Harvier, Médecin des hôpitaux de Paris and Paul Mathieu, Professeur agrégé à la Faculté de médecine de Paris, Chirurgien des hôpitaux. 1922, 1 volume in 8-de 159 pages avec 26 figures, price 8 fr. J. B. Baillière et Fils, 19, rue Hautefeuille, Paris.

This little paper bound volume of 159 pages would be a valuable addition to any practitioner's library. For it is objective and accurate.

We hope that the publishers will soon bring it out in English, provided only that they bring it out in such a cheap form that we all will feel at liberty to secure a copy. It appears to be one volume in a series of lectures to graduates in medicine on the diseases of the stomach and intestines. The other volume in the series is that on colitis.

The standpoint, of course, is different somewhat from that usually prevalent in America, inasmuch as the duodenal ulcers are separated very sharply from the pyloric ulcers. The authors group the ulcers,

therefore, as those of the cardia, those of the lesser curvature, those of the pylorus, and, finally, those of the duodenum. They consider also ulcers of the jejunum and ileum, but very briefly.

It is interesting to note that under the medicinal treatment they give credit for the introduction of bismuth to Odier who described its use in 1786. Monneret revived its use in 1849. It was only in 1893 that Kussmaul and Fleiner re-introduced it in Germany, together with the use of the stomach tube. They, of course, have the credit for the use of bismuth, much to the disgust of the French. This nationalism in giving credit for the introduction of the medicinal treatment of ulcers reminds us that in this country we are apt to give credit to local men rather than to the foreign man who originated the idea and taught the Americans the principles.

G. H. H.

PRECIS DE PATHOLOGIE MEDICALE. Tome IV. Maladies du sang et des organes hématopoiétiques. Par P.-Emile Weil et Marcel Bloch. Maladies des reins par Pasteur Vallery-Radot. Price 25 fr. Tome V. Maladies de L'Appareil Digestif et de La Nutrition. Par Marcel Labbé et G. Vitry. Masson et Cie, Editeurs, Libraires de L'Académie de Médecine 120, Boulevard Saint-Germain, Paris, 1922. Price, 25 fr.

This collection of reviews will be complete in six volumes. Each volume is 12 mo. Volume 4 has 628 pages; volume 5 contains 788 pages. They are well bound with good cloth and make excellent books for review and for the preparation for examinations. Naturally, they are not as useful to those who are interested in running down some detail in their practice. The illustrations are good; especially noticeable are the reproductions of endoscopic views (or cystoscopic, as the case may be).

Of course, the classification and standpoint are the French rather than the English or German. Therefore, we find some differences in classification and description from those in our own literature. Your reviewer was particularly interested in noticing that they give great prominence to the classification of colitis—according to its location. Thus we find sigmoiditis and typhlitis and inflammations of the flexures. This standpoint is of practical value because it explains many troubles which cannot be explained on the basis of there being only a simple, diffuse colitis. It would be a standpoint that would wisely be given greater prominence in the United States.

The diatheses are also given greater prominence than in our own literature. Glycosuria, for example, is rigidly separated from diabetes mellitus and made an example of a diathesis.

Your reviewer would commend the books to those who, being able to read French, are looking for concise, clear statements of pathological conditions in preparation for some examination or review.

G. H. H.

THE OXFORD INDEX OF THERAPEUTICS. By Victor E. Sorapure, M.B., Ch.B., F.R.C.S. (Edin.). Publishers, Henry Frowde and Hodder & Stoughton, American Branch, 35 West 32d St., New York. Price, \$12.00.

This book consists of articles contributed by English and American physicians. The articles are arranged in alphabetical form and cover a wide range of subjects—eye, skin, ear, some surgery, etc., as well as strictly medical topics. The contributors are well known and handle their topics creditably in most instances. The prescriptions are given on the basis of the British Pharmacopoeia and not always easily adapted to American use.

L. C.

ABDOMINAL PAIN. By Prof. Dr. Norbert Ortner, Chief of the Second Medical Clinic at the University of Vienna. Authorized Translation by William A. Brams, M.D., formerly Lieutenant-Commander Medical Corps, U. S. N., and Dr. Alfred P. Luger, First Assistant, Second Medical Clinic, University of Vienna. Rebman Company, New York, 1922. Cloth. Price, \$5.00. Pp. 362.

A criticism of this book might be written from various standpoints. For example, we might study it as an essay and a general address on the topic of abdominal pain; or, we might think of it as a reference book for seeking out the various possibilities of abdominal pain; or, again, it might be taken as a guide to the differential diagnosis in cases of abdominal pain. Our evaluation would be different when judged from the different standpoints. For example, as an address on the subject of abdominal pain we find it an interesting piece of writing and one that is extremely helpful for a physician who is out on a holiday or taking a course of reading in his leisure hours. But as a rapid reference book or for a book for working out differential diagnosis it is not nearly as helpful as the more exact studies put up by Barker and others of his school of thought.

In other words, the newer development of medicine requires very careful and exact experimental and functional tests as the basis of our diagnoses. This book, however, leads us to continue our favorite method of library speculation. For that reason it would probably not be hailed with great acclaim by the younger and laboratory trained members of our profession.

G. H. H.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

POLLEN DIAGNOSTICS-LEDERLE.—Liquids obtained by extracting the dried pollen of plants with a liquid consisting of 67 per cent. glycerin and 33 per cent. saturated solution of sodium chlorid. Pollen diagnostics-Lederle are marketed in capillary tubes containing 0.01 c.c. of a liquid, representing 100 pollen units. Pollen diagnostics-Lederle are employed in the diagnosis of hay fever (Pollenosis). (See New and Nonofficial Remedies, 1922, p. 232.) The following preparations have been accepted:

Arizona Ash Diagnostic-Lederle: Prepared from the pollen of Arizona ash (*Fraxinus toumeyi*).

Arizona Walnut Diagnostic—Lederle: Prepared from the pollen of Arizona walnut (*Juglans major*).

Black Walnut Diagnostic-Lederle: Prepared from the pollen of black walnut (*Juglans nigra*).

Careless Weed Diagnostic-Lederle: Prepared from the pollen of careless weed (*Amaranthus palmeri*).

Cottonwood Diagnostic-Lederle: Prepared from the pollen of cottonwood (*Populus macdougalii*).

June Grass Diagnostic-Lederle: Prepared from the pollen of June grass (*Poa pratensis*).

Ragweed Diagnostic-Lederle: Prepared from the pollen of ragweed (*Ambrosia elatior*).

Red Top Diagnostic-Lederle: Prepared from the pollen of red top (*Agrostis palustris*).

Sage Brush Diagnostic-Lederle: Prepared from the pollen of sage brush (*Artemisia tridentata*).

Shad Scale Diagnostic-Lederle: Prepared from the pollen of shad scale (*Atriplex canescens*).

Sheep Sorrel Diagnostic-Lederle: Prepared from the pollen of sheep sorrel (*Rumex acetosella*).

Slender Ragweed Diagnostic-Lederle: Prepared from the pollen of slender ragweed (*Franseria tenuifolia*).

Sweet Vernal Grass Diagnostic-Lederle: Prepared from the pollen of sweet vernal grass (*Anthoxanthum odoratum*).

Timothy Diagnostic-Lederle: Prepared from the pollen of timothy (*Phleum pratense*).

Lederle Antitoxin Laboratories, New York. (*Jour. A. M. A.*, June 10, 1922, p. 1803.)

NEUTRAL ACRIFLAVINE-HEYL.—The base of 3:6 diamino-10-methylchloracridine, containing about 1.5 per cent. of sodium chloride as a stabilizer. The actions, uses and dosage of neutral acriflavine-Heyl are essentially the same as those of acriflavine (see Acriflavine and Proflavine, New and Nonofficial Remedies, 1922, p. 25). Neutral Acriflavine (Heyl) is also supplied in the following forms:

Neutral Acriflavine-Heyl Tablets 0.1 gm.,

Neutral Acriflavine-Heyl Throat Tablets,

Neutral Acriflavine-Heyl "Pro Injectione," 0.5 gm. vials,

Neutral Acriflavine-Heyl "Pro Injectione," 1.0 gm. vials.

National Aniline and Chemical Co., New York. (*Jour. A. M. A.*, June 17, 1922, p. 1893.)

LUMINAL TABLETS, ¼ GRAIN.—Each tablet contains luminal, ¼ grain. For a discussion of the actions, uses and dosage of luminal, see New and Nonofficial Remedies, 1922, p. 60.

VEN STERILE SOLUTION PROCAIN 0.5 PER CENT.—Each ampule contains 1 c.c. of a 0.5 per cent. solution of procain-N. N. R. (New and Nonofficial Remedies, 1922, p. 35). Intra Products Co., Denver.

VEN STERILE SOLUTION PROCAIN 2 PER CENT.—Each ampule contains 2 c.c. of a 2 per cent. solution of procain-N. N. R. (New and Nonofficial Remedies, 1922, p. 35). Intra Products Co., Denver.

VEN STERILE SOLUTION PROCAIN 5 PER CENT.—Each ampule contains 5 c.c. of a 5 per cent. solution of procain-N. N. R. (New and Nonofficial Remedies, 1922, p. 35). Intra Products Co., Denver. (*Jour. A. M. A.*, June 17, 1922, p. 1893.)

DIPHTHERIA ANTITOXIN (CONCENTRATED ANTIDIPHTHERIC SERUM GLOBULIN)—P. D. and Co.—Marketed in piston syringe containers, containing, respectively 1,000, 3,000, 5,000, 10,000 and 20,000 units. Parke, Davis & Co., Detroit.

ANTITETANIC SERUM (see New and Nonofficial Remedies, 1922, p. 282).—Also marketed in piston syringe containers, containing, respectively 3,000, 5,000 and 10,000 units. Parke, Davis & Co., Detroit.

ANTIGONOCOCCIC SERUM (see New and Nonofficial Remedies, 1922, p. 285).—Also marketed in bulbs, containing 12 c.c. Parke, Davis & Co., Detroit.

ANTISTREPTOCOCCIC SERUM—P. D. and Co. (see New and Nonofficial Remedies, 1922, p. 289).—Also marketed in piston syringe containers, containing, respectively, 20 c.c. and 50 c.c. Parke, Davis and Co., Detroit. (*Jour. A. M. A.*, June 17, 1922, p. 1893.)

ANTI-ANTHRAX SERUM—P. D. and Co.—An anti-anthrax serum (see New and Nonofficial Remedies, 1922, p. 284) marketed in syringes containing 50 c.c. Parke, Davis and Co., Detroit.

ANTIMENINGOCOCCIC SERUM—P. D. and Co.—An antimeningococcus serum (see New and Nonofficial Remedies, 1922, p. 286) marketed in packages of two syringes, each containing 15 c.c.; also in packages of one syringe containing 50 c.c. Parke, Davis and Co., Detroit.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE—P. D. and Co.—A diphtheria antitoxin-toxin mixture (see New and Nonofficial Remedies, 1922, p. 282). Each cubic centimeter represents a single human dose. It is marketed in packages of three bulbs representing one immunizing treatment; also in vials containing 20 c.c. Parke, Davis and Co., Detroit.

TUBERCULIN B. F. (BOVINE)—P. D. and Co.—A preparation of tuberculin Denys (see New and Nonofficial Remedies, 1922, p. 296). It is made in the same manner as tuberculin Denys (Human), except that the bovine type of tubercle bacillus is used. It is marketed in packages of six 1 cubic centimeter sealed glass tubes. Parke, Davis and Co., Detroit.

BORCHERT'S MALT COD LIVER OIL AND PHOSPHORUS—Each 100 c.c. contains phosphorus, 0.009 gm.; cod liver oil, 25 c.c., and Malt Extract (Plain) (see New and Nonofficial Remedies, 1922, p. 176), 75 c.c. Borchert Malt Extract Co., Chicago. (*Jour. A. M. A.*, July 8, 1922, p. 135.)

YEAST PREPARATIONS.—The Council on Pharmacy and Chemistry has adopted a general discussion of yeast preparations for inclusion in New and Nonofficial Remedies. In this article it is stated:

The use of yeast as a bactericide in external infections has been practically abandoned. Yeast and preparations derived therefrom have been widely extolled of late as sources of vitamin B whenever there may be indications for its therapeutic use. However, these indications are so indefinite and the opportunities of obtaining vitamin B through the customary foods are so abundant that the demand for yeast vitamin seems to be limited. The therapeutic aspects of the vitamin problem are still in the experimental stage. Yeast has a laxative action, but the cause of this action is not known. Yeast has been recommended for internal administration because of its supposed beneficial effects upon furuncles, acne, etc. Many clinicians doubt this effect, which may, after all, be expected from any anticonstipation agent. It is not clear to what extent, if at all, live cultures of yeast may be used to change the intestinal flora in cases where such a change is desirable. (*Jour. A. M. A.*, July 8, 1922, p. 135.)

EPINEPHRINE—G. W. C. Co.—A brand of epinephrine—N. N. R. It is marketed in vials containing epinephrine—G. W. C. Co. (base), 1 grain, and in the form of Epinephrine Chloride Solution—G. W. C. Co., which contains epinephrine hydrochloride equivalent to 1 part of epinephrine in 1,000 parts of physiological solution of sodium chloride. G. W. Carnrick Co., New York.

PITUITARY EXTRACT-LEDERLE (OBSTETRICAL).—An extract of the posterior lobe of the pituitary body of cattle, approximately two and one-half times the strength of solution of hypophysis, U. S. P., preserved by the addition of chlorbutanol. For actions and uses, see New and Nonofficial Remedies, 1922, p. 213, under Pituitary Gland. Pituitary Extract—Lederle (Obstetrical) is marketed in 0.5 cubic centimeter and 1 cubic centimeter ampules. Lederle Antitoxin Laboratories, New York.

PITUITARY EXTRACT-LEDERLE (SURGICAL).—An extract of the posterior lobe of the pituitary body of

cattle, approximately five times the strength of solution of hypophysis, U. S. P., preserved by the addition of chlor butanol. For actions and uses, see under Pituitary Gland, New and Nonofficial Remedies, 1922, p. 213. Marketed in 5 cubic centimeter vials. Lederle Antitoxin Laboratories, New York.

TYPHOID VACCINE (PROPHYLACTIC)—P. D. and Co.—A typhoid vaccine (see New and Nonofficial Remedies, 1922, p. 310). Marketed in packages of three ampules, containing 500 million, 1,000 million and 1,000 million killed bacteria, respectively; also in packages of three syringes, containing 500 million, 1,000 million and 1,000 million killed bacteria, respectively. Parke, Davis and Co., Detroit.

GONOCOCCUS VACCINE—P. D. and Co.—A gonococcus vaccine (see New and Nonofficial Remedies, 1922, p. 301). Marketed in packages of four 1 cubic centimeter bulbs, each containing 1,000 million killed bacteria, in packages of four 1 cubic centimeter syringes, each containing 1,000 million killed bacteria; also in 5 cubic centimeter and 20 cubic centimeter bulbs containing 1,000 million killed bacteria per cubic centimeter. Parke, Davis and Co., Detroit.

FURUNCULOSIS VACCINE—P. D. and Co.—A staphylococcus vaccine (see New and Nonofficial Remedies, 1922, p. 306). Marketed in packages of four 1 cubic centimeter bulbs, each containing 2,000 million killed *Staphylococcus aureus* obtained from furuncular lesions; in four 1 cubic centimeter syringes, each containing 2,000 million killed staphylococci; also in 5 cubic centimeter and 20 cubic centimeter bulbs, each containing 2,000 million killed staphylococci per cubic centimeter.

STAPHYLOCOCCUS VACCINE (COMBINED)—P. D. and Co.—A staphylococcus vaccine (see New and Nonofficial Remedies, 1922, p. 306). Marketed in four 1 cubic centimeter bulbs, each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus*; in four 1 cubic centimeter syringes, each containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus*; also in 5 cubic centimeter and 20 cubic centimeter bulbs, containing 1,000 million killed *Staphylococcus albus* and 1,000 million killed *Staphylococcus aureus* per cubic centimeter. Parke, Davis and Co., Detroit.

VACCINE VIRUS—P. D. and Co.—A vaccine virus (see New and Nonofficial Remedies, 1922, p. 290). Marketed in packages containing one capillary tube and in packages containing five capillary tubes. Each package is accompanied by a bulb for ejecting and a needle for scarifying. Parke, Davis and Co., Detroit.

ERYSIPELAS AND PRODIGIOUS TOXINS—P. D. and Co.—An erysipelas and prodigious toxin (Coly) (see New and Nonofficial Remedies, 1922, p. 315), marketed in packages of five 1 cubic centimeter bulbs and in 15 cubic centimeter bulbs. Parke, Davis and Co., Detroit. (*Jour. A. M. A.*, July 15, 1922, p. 217.)

ALBUMIN MILK-HOOS.—**DRIED PROTEIN MILK**.—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 gm. contains, approximately, protein, 30 gm.; butterfat, 25 gm.; milk sugar, 15 gm.; ash, 4 gm., and small amounts of free lactic acid. When suitably mixed with water, albumin milk-Hoos is said to be useful for correcting intestinal disorders of infants and children. Louis Hoos, Chicago.

NEOCINCHOPHEN-ABBOTT TABLETS.—Each tablet contains five grains neocinchophen-Abbott. For a discussion of the actions and uses of neocinchophen and the description of neocinchophen-Abbott, see *New and Nonofficial Remedies*, 1922, p. 88.

BENZYL BENZOATE-M. C. W.—A brand of benzyl benzoate-N. N. R. For a discussion of the actions, uses and dosage of benzyl benzoate, see *New and Nonofficial Remedies*, 1922, p. 64. (*Jour. A. M. A.*, July 29, 1922, p. 310.)

PROPAGANDA FOR REFORM

EVANS CANCER CURE.—Dr. R. D. Evans of Brandon, Manitoba, sells a "positive cure for cancer." The price is "one hundred dollars in advance!" The victim who parts with \$100 for this cruel and worthless fake is told to shave a patch about the size of a silver dollar on the crown of the head. The "cure" is applied to this spot. This is for the treatment of internal cancer. "For 'external cancer' the discovery is applied on the spot." From an analysis made in the A. M. A. Chemical Laboratory, it was evident that Evans Cancer Cure is essentially a mixture of 1 part of a fatty substance (such as lard) and 5 parts of dried ferrous sulphate (*Jour. A. M. A.*, June 3, 1922, p. 1739).

MORE MISBRANDED NOSTRUMS.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act:

BEIL'S NEW NERVE TABLETS (Beil Mfg. Co.), consisting essentially of aloin, zinc phosphid, nux vomica extractives, resin, a laxative plant drug, magnesium and iron salts.

DIEMER'S PRESCRIPTION FOR GONORRHEA AND GLEET (Dr. F. W. Diemer Medicine Co.), consisting of pills which contain Epsom salt, calcium sulphid, ferrous sulphate and oil of cubebs, and tablets for external use, containing boric acid, zinc sulphate and hydrastin.

DIEMER'S DYSPEPSIA TABLETS (Dr. F. W. Diemer Medicine Co.), consisting chiefly of baking soda, a laxative drug and ipecac alkaloids.

DIEMER'S HOT TODDY (Dr. F. W. Diemer Medicine Co.), tablets containing milk sugar, baking soda, a laxative plant drug and small amounts of ginger and red pepper.

DIEMER'S KIDNEY AND BLADDER TABLETS (Dr. F. W. Diemer Medicine Co.), consisting chiefly of baking soda, saltpeter and a laxative plant drug.

DIEMER'S TREATMENT FOR PILES (Dr. F. W. Diemer Medicine Co.), suppositories containing cacao butter, borax, alum and tannin-bearing plant material.

DIEMER'S ANTISEPTIC FEMALE SUPPOSITORIES (Dr. F. W. Diemer Medicine Co.), suppositories containing borax, alum and tannin-bearing plant material.

DIEMER'S RHEUMATIC REMEDY (Dr. F. W. Diemer Medicine Co.), containing chiefly acetanilid, baking soda and a laxative plant drug.

DIEMER'S PENNYROYAL AND TANSY COMPOUND (Dr. F. W. Diemer Medicine Co.), tablets containing chiefly plant material, including aloes and red pepper, with saltpeter and sand.

DIEMER'S PREPARATION FOR SPECIFIC BLOOD POISON (Dr. F. W. Diemer Medicine Co.), containing, chiefly, calcium carbonate, ferric oxid, potassium iodid and small amounts of arsenic and mercury.

DIEMER'S LAXATIVE GRIP-MALARINE (Dr. F. W. Diemer Medicine Co.), consisting of acetanilid, baking soda, aloes and red pepper.

MANHOOD TABLETS (Hollander-Koshland Co.), containing damiana, strychnin and zinc phosphid.

PATTEN'S LIGHTNING SALVE (John H. Patten), consisting of camphor, turpentine, soap, rosin, tallow, beeswax and petrolatum. (*Jour. A. M. A.*, June 3, 1922, p. 1740.)

SALICYLATES "NATURAL" AND "SYNTHETIC."—The Wm. S. Merrell Company reshaped the definitely refuted claim that "synthetic" salicylic acid is inferior to the "natural" kind. The Merrell Company suggests that, to avoid the effects of synthetic salicylic acid, physicians should specify "natural" and "Merrell" in writing prescriptions for sodium salicylate or any of the other salicylates. About ten years ago, the Council on Pharmacy and Chemistry instituted a thorough investigation of the asserted superiority of natural salicylic acid and salicylates over the ordinary or synthetic kind. This investigation afforded conclusive proof that the claim—based on a mixture of mysticism, commercial exploitation, misinterpretation and tradition—is without foundation. Nevertheless, the Merrell Company attempts to induce the medical profession to perpetuate this exploded fallacy and to specify the Merrell product, which costs twenty-four times as much as the synthetic sodium salicylate of U. S. P. quality. (*Jour. A. M. A.*, June 3, 1922, p. 1742.)

MORE MISBRANDED NOSTRUMS.—The following have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act:

AMMONAL TABLETS (Ammonal Chemical Co.), containing acetanilid, ammonium carbonate, sodium bicarbonate and sodium phosphate.

JOHNSON'S FEMALE REGULATOR (Logan Pharmacal Co. and France and New York Medicine Co.), consisting of pills containing extracts of vegetable drugs.

FOEFO-FERROGEN DE JOHNSON, containing caffeine and compounds of iron, quinin, strychnin, arsenic and calcium.

BICK'S NERVE TONIC (Palestine Drug Co.), consisting of two preparations, one a brown tablet, containing phosphorus, phosphates, zinc and iron and the other a pellet containing phosphate, iron and strychnin.

VITALO (Allan-Pfeiffer Chemical Co.), containing vegetable extractive matter including damiana, nux vomica, sugar, alcohol and water. (*Jour. A. M. A.*, June 10, 1922, p. 1832.)

THE INTRAVENOUS USE OF ACACIA.—It is now generally accepted that acacia has a limited and uncertain usefulness. The intravenous use of acacia is a recent therapeutic procedure and apparently sufficient time has not elapsed for the thorough appraisal of its use as a therapeutic remedy. Bearing in mind the accidents from the use of acacia that have been reported, the lack of agreement as to its beneficial effects, among surgeons who have tried it, the experimental evidence that has been reported as to its deleterious effects and the paucity of data indicating its clinical usefulness, conservative practitioners will still withhold their verdict. Moreover, the questions of intravenous therapy, which are involved in any discussion on the use of acacia in shock, hemorrhage and allied conditions, are an im-

portant and serious complicating consideration. (*Jour. A. M. A.*, June 17, 1922, p. 1897.)

VITA ZEST NOT ADMITTED TO N. N. R.—The Council on Pharmacy and Chemistry reports that Vita Zest (Vita Zest Co., Inc., New York City) comes in the form of capsules and is stated to be composed of 83 1/3 per cent. of "highly concentrated vitamin extracts (Fat Soluble A, Water Soluble B and Water Soluble C)". The amount of material in each capsule is not declared nor is any information offered to show that the amount (or potency) of the three vitamins said to be contained in the vitamin extract is determined or controlled. Even if it were shown that the product contains appreciable amounts of vitamins, the claims advanced for it are such that most enthusiastic advocates of the administration of vitamin would scoff at them. The Council declared Vita Zest inadmissible to New and Nonofficial Remedies, because (1) its composition is indefinite; (2) it is exploited under unwarranted therapeutic claims and in a manner which tends to its indiscriminate use, and (3) because the name suggests its haphazard use as a general tonic. (*Jour. A. M. A.*, June 17, 1922, p. 1912.)

LAXATIVES.—UNTOWARD EFFECTS OF LAXATIVES.—Lately a number of instances of cutaneous manifestations due to the use of phenolphthalein as a laxative drug have been brought to the attention of physicians, particularly by dermatologists. Now Underhill and Errico have demonstrated that when magnesium sulphate, sodium sulphate and potassium and sodium tartrate are administered experimentally in doses capable of producing diarrhea, a distinct concentration of the blood may take place. The fact that purgatives exert a definite influence, in the direction of concentrating the blood, indicates that care should be exercised in the administration of purgatives in disease conditions, especially in those conditions known to be responsible for concentrated blood. Blood concentrated to some extent, and yet not sufficiently concentrated to be dangerous in itself, may reach a dangerous concentration by the added influence of the purgative. (*Jour. A. M. A.*, June 24, 1922, p. 1964.)

"MEDICAL" TESTIMONIALS FOR CHIROPRACTIC.—Chiropractors affect, with "patent medicine" fakers, a fine disdain for scientific medicine and the medical practitioner. How readily, however, do both seize with avidity any statement made by an individual who may be presumed to have the right to put "M.D." after his name—provided that statement seems favorable to the cause or may be so twisted as to make the public believe that a reputable physician has spoken a good word either for chiropractic or nostrum industry.

For some time there has been going the rounds a chiropractic advertisement purporting to quote "Opinions of Well-Known Medical Men" on chiropractic. The material obviously emanates from one of the chiropractic "ad" factories. These make a business of supplying the individual chiropractor with advertising copy that he, because of his educational deficiencies, would be unable to write for himself. According to these stock advertisements: "... there is an ever increasing number of M.D.'s all over the United States and Canada who understand, appreciate and practice straight chiropractic to the exclusion of medicine and every other method, as witness the following selected at random: ". Then follow what purport to be quotations from physicians. An examination of the records of the individuals who are quoted permits an appraisalment of their testimonials. (*Jour. A. M. A.*, July 1, 1922, p. 57.)

DIGALEN.—Digalen was introduced with the claim that it was soluble amorphous digitoxin (a substance unknown to chemists) and with the claim that it possesses all the advantages and none of the disadvantages of digitoxin, such as cumulative effect and the production of nausea (claims which have been made for many proprietary digitalis preparations, but which always prove untenable). In 1909 the Council on Pharmacy and Chemistry admitted Digalen to New and Nonofficial Remedies after the manufacturer had discontinued the palpably unwarranted claims which had been made for the preparation. The Council did not determine whether Digalen contained "soluble amorphous digitoxin," but accepted it merely as a standardized and fairly stable digitalis preparation. Subsequently, the claim that it was a stable preparation was challenged. In view of the increased extravagance of the claims for Digalen, the Council in 1915 made a re-examination of this product and directed its omission from New and Nonofficial Remedies. There is no available evidence to indicate that Digalen has any advantage over tincture of digitalis or the infusion of digitalis for oral administration or that it is equal to ouabain or strophanthin for intramuscular or intravenous injection. With a better knowledge of proper dosage—for instance by Eggleston—an increasing number of practitioners find that, except in exceptional cases, the desired action of digitalis can be obtained by the administration of the official tincture of digitalis. (*Jour. A. M. A.*, July 1, 1922, p. 61.)

DESENSITIZATION TO RHUS.—Contrary to the theory of "desensitization" to rhus poisoning by internal administration of tincture of rhus, it appears that the susceptibility to rhus may be increased by successive intoxications. (*Jour. A. M. A.*, July 15, 1922, p. 220.)

HAELEPRON TABLETS NOT ADMITTED TO N. N. R.—Haelepron Tablets are made by Bodenstein and Gaslinsky, Berlin, Germany, and sold in the United States by the Haelepron Sales Co., New York. The following nonquantitative statement of the composition of Haelepron Tablets appears on the trade package: "Haemaglobin, Lecithin, Calc. Lact., Protein vegetab., Ferr. Sacch., Ferr. pyrophos." The Council on Pharmacy and Chemistry finds Haelepron Tablets inadmissible to New and Nonofficial Remedies because, (1) their composition is indefinite and semisecret; (2) the recommendations for their indiscriminate use are unwarranted; (3) the name is not descriptive of their composition, and (4) they are an irrational and useless combination which can have little, if any, effect on the conditions for which they are recommended. (*Jour. A. M. A.*, July 22, 1922, p. 319.)

PLATT'S CHLORIDES.—An advertisement for Platt's Chlorides calls attention to the fact that chlorin antiseptics are at present in favor. The statement is then made that "chlorid of lime" is perhaps the best known of the older chlorin antiseptics. In the advertising it is stated, more or less directly, that Platt's Chlorides contain "chlorid of lime." Chlorid of lime is an unscientific name for chlorinated lime, official in the U. S. Pharmacopeia as Calx chlorinata. An analysis of Platt's Chlorides, made in the A. M. A. Chemical Laboratory several years ago, failed to show that the preparation contained any active chlorin derivative upon which the virtues of chlorinated lime depends. Chlorides were present, but chlorides are not known to have any germicidal effect. A re-examination of Platt's Chlorides, made recently in the Association's Chemical Laboratory, again demonstrated the absence of active chlorin such as is contained in chlorinated lime. (*Jour. A. M. A.*, July 22, 1922, p. 319.)

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ORIGINAL ARTICLES

TREATMENT OF PERNICIOUS ANEMIA WITH SPECIAL REFERENCE TO ARSENIC AND HYDROCHLORIC ACID*

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In general, two types of pernicious anemia are recognized—the aplastic anemia, in which there is no evidence of blood regeneration, and the chronic pernicious anemia in which there is evidence of both blood destruction and blood regeneration. In this paper only the latter type is considered.

This disease is so fully described in the textbooks that no extended account of the blood findings or symptomatology need here be given. In the blood findings I merely wish to emphasize the following: high color index, reduced red count, leukopenia, poikilocytosis, macrocytosis and a diminished number of platelets. In the clinical picture the important features are: history of a sore tongue or sore mouth progressive weakness with shortness of breath, numbness and tingling of the hands and feet, frequently fever, morning diarrhea, psychic alterations or ataxia due to lesions in the spinal cord or brain. *Achylia gastrica* is always present.

The disease runs a course of months to many years with a tendency to relapses and spontaneous remissions.

In a disease, the etiology of which is unknown, it is not strange that various methods of treatment have been advocated. The multiplicity of methods and the fact that no patient has been permanently cured indicate that, as yet, no satisfactory plan of therapy has been found.

It is truly remarkable that hazardous operations should be considered in a disease that is associated with degeneration not only of the hematopoietic organs, but of every organ in the body, especially the heart, liver, and kidneys. This is especially true when the only claim made for such surgical procedures is

that the patients who survive have a better chance of a remission. As remissions occur frequently after many hours of unconsciousness without any form of therapy, no reliable conclusions can be formed as to the efficacy of any plan of treatment bringing on a remission. Therefore, in adopting a plan of treatment, not only early remissions have to be considered, but the prevention of relapses and the duration of life. In this connection, it might be suggested that, other things being equal, the plan of therapy that gives all patients the same change of a remission should be preferred.

Of the various methods of treatment that have been used, I shall consider only three—splenectomy, blood transfusion, and arsenic and hydrochloric acid, combined with measures to improve the general health, such as rest, liberal diet and combating oral sepsis.

Splenectomy.—In 1913, Eppinger of Vienna suggested splenectomy as a possible cure for pernicious anemia because he had observed evidences of diminished urobilin output and diminished hemolysis after the spleen had been removed for other conditions.

This method of treating cases of pernicious anemia was soon adopted by the surgeons in Germany and in America. It was soon found, however, that the mortality of the operation was high, the immediate benefits transient, and the general course of the disease in no way altered. This plan of treatment has been discarded in Germany and by most of the surgeons in this country. However, an attempt has been made recently to revive this method of treatment because out of 50 splenectomized patients five are alive at the end of five years. Yet as a direct result of these fifty operations, three patients died that had a possible chance to live five years or longer. Realizing the unsatisfactory results from splenectomy alone, N. M. Percy¹ of Chicago in 54 cases has removed the spleen, appendix and gall bladder. The immediate mortality was over 10 per cent. In discussing the treatment of pernicious anemia L. F. Barker² said that “in no other disease is the common sense of the physician so often required to check the radical tendencies of the overzealous specialist.”

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

Blood Transfusion.—The method of treatment advocated by most physicians is the intravenous administration of compatible blood. Some of the adherents of this method advocate the giving of large quantities, as much as 1,000 c.c. or even 1,500 c.c. at one time. The object of transfusions of blood is to bring on a remission and possibly stimulate the hematopoietic organs. Statistics show that transfusions bring on remissions in about half the cases, but the duration of life is more important than an early remission. There are no reliable statistics obtainable showing the relative duration of life with different methods of treatment. The figures of Minot and Lee³ regarding early deaths in transfusions as compared with untreated cases are significant. Of 46 cases treated by transfusions, only 9 (20 per cent.) showed evidence of bone marrow stimulation, 17 cases (37 per cent.) showed no improvement, and 10 cases (21 per cent.) died within a month. Of 40 untreated cases only 4 (10 per cent.) died within a month.

If the treatment of pernicious anemia were merely a matter of replacing blood deficit by normal blood, thus allowing the blood-forming organs to rest, there could be no logical arguments against repeated massive transfusions. The life of the transfused corpuscle and the effect of the transfused blood on the blood forming organs are quite important in this connection and indicate that blood-transfusion may be detrimental, in some cases, at least, even though followed by a remission. According to W. J. Mayo,⁴ the life of the transfused red cells in persons not suffering with pernicious anemia, is from one to three months. It is a recognized fact that the life of the transfused red cell is considerably less in patients with pernicious anemia than in normal individuals or in patients with other types of anemia. Hitzrot,⁵ in one of his cases of pernicious anemia in which repeated transfusions were done, could distinguish the transfused red cell up to the sixteenth day after the first transfusion. With subsequent transfusions, it began to disappear on the twelfth day, then on the eighth day and at last could not be found after the fourth day. This evidence is against the theory that transfused blood carries some substance that inhibits or destroys the hemolytic agent in pernicious anemia. Furthermore, these facts are in line with the clinical observation that remissions brought on by blood transfusions are more likely to be followed by early relapses, than spontaneous remissions. Although evidence of blood regeneration is frequently found after small or moderate transfusions, in 20 per cent., according to Minot,⁶ massive or frequently repeated transfusions depress the bone marrow function. As the natural stimulus of the bone

marrow is oxygen want, blood transfusion by interfering with this natural stimulus may result in decreased marrow activity. Robertson⁷ at the Rockefeller Institute found positive evidence of bone marrow depression following experimental plethora in rabbits. He used as the criterion of bone marrow activity, the reticulated red cells. "Daily transfusions of 10 c.c. of blood for two or three weeks caused the reticulated cells practically to disappear from the circulating blood and from the bone marrow." In some of the animals a marked anemia developed despite daily transfusions. Vogel and McCurdy quoted by Robertson, noted in a study of reticulated cells in pernicious anemia following transfusions, that a decided drop occurred in many instances. Therefore, if the bone marrow may be depressed by blood transfusions and the life of the transfused corpuscle becomes shorter with successive transfusions, it seems quite clear why transfusions in some cases, at least, may be distinctly harmful.

Treatment with Hydrochloric Acid and Arsenic Combined with Measures to Improve the General Health.—Although this is the oldest treatment known for pernicious anemia, in my opinion it gives these patients the best chance of prolonging their lives of any form of therapy so far suggested. It does not require the transporting of patients a considerable distance to a skilled specialist, but may be carried out in any home by the family doctor. This method of treatment is based on the most plausible etiological theories. Although the cause of pernicious anemia is unknown, it is probable that the manifestations of the disease depend upon a variety of factors, most important of these are dietary deficiencies, overwork, mental stress, loss of sleep, achylia gastrica and oral sepsis. It is the consensus of opinion that pernicious anemia is due to some hemolytic agent that reaches the blood stream via the gastro-intestinal tract. In some patients with the fish tapeworm, an anemia develops that is indistinguishable from pernicious anemia, there is an achylia gastrica and the course of the disease is characterized by remissions and relapses.

Pernicious anemia in the horse is associated with the constant finding of the ova of a fly in the stomach or intestines. Evidence is accumulating to indicate that when there is absolute lack of gastric ferments some substance is formed, due to bacterial changes or as a result of an abnormal food splitting process in the proteins, that can be detrimental to the blood forming organs. Tyramin⁸ is a substance of this nature and has been isolated from putrid meat and from certain types of cheese. Tyramin has been produced from the amino acids by various races of bacteria, among

these the colon bacillus, a known inhabitant of the intestinal tract. Sasaki, a Japanese physician, by injecting animals with small doses of tyramin, produced an anemia of the pernicious type. Cederburg,⁹ a firm believer in the undigested protein poison theory, considers the relapses and remissions as a manifestation of anaphylaxis and antianaphylaxis. Pilcher,¹⁰ in a study of 433 cases of achylia gastrica, found the bacterial flora identically the same in this condition as in cases of pernicious anemia. Only in cases with lack of free hydrochloric acid did he find in the stomach contents a variety of actively growing, ordinarily pathogenic bacteria.

The lack of gastric juice as a factor in pernicious anemia is strikingly illustrated by the report by Hartman¹¹ of the Mayo Clinic of two gastroctomized patients later developing pernicious anemia.

In consideration of the above facts and theories, the following plan of treatment, advocated by a few of the leading internists, but condemned by others, would seem to be the most rational form of therapy as yet known.

(1) *Absolute Rest in Bed.*—This should be maintained until the percentage of hemoglobin is above 60. This usually requires from 4 to 6 weeks. On resuming activities, the patient should be warned of the dangers of excess in mental or physical exertion.

(2) *Removal of Foci of Infection.*—This applies chiefly to infections about the teeth. William Hunter¹² found rapid improvement in some cases following the treatment of oral sepsis without any other form of therapy. Infected tonsils and sinuses only rarely require treatment.

(3) *Dietetic Treatment.*—As all of these patients have an absence of gastric secretion, anorexia is a prominent symptom and feeding is frequently a difficult problem. Excepting raw fruits and rough vegetables, which may produce or aggravate diarrhea, no form of foodstuff is contraindicated. In the beginning it is advisable to give a milk diet, 2 to 3 ounces every three hours. The diet can be gradually increased to an intake of 4,000 to 5,000 calories. The patient is encouraged to eat regardless of inclination or the fear of consequences.

(4) *Hydrochloric Acid.*—From experiments and clinical studies given above, the possibility, at least, of gastric anacidity playing some part in the etiology of pernicious anemia cannot be denied. Hydrochloric acid can do no harm. All its functions may not be known. It is recognized as the best remedy to disinfect the gastric contents and lessen abnormal fermentative processes. It often acts in a specific manner in controlling an exhausting diarrhea. Ten to fifteen drops of

the dilute hydrochloric acid should be given before, during and after meals. Croftan and Reisman give much larger doses and, they believe, with good results. As there are no recorded cases of pernicious anemia with return of gastric juice, hydrochloric acid therapy should be continued during remission.

(5) *Arsenic.*—As to the benefit of arsenic in pernicious anemia, opinions vary. By many it is regarded as almost a specific, by others it is looked upon as having little or no influence on the progress of the disease. It may be significant that McPhedran's¹³ patient, who had a remission of 18 years, the longest on record, was given 45 minims of Fowler's solution daily. It is supposed to act as a stimulant to the blood forming organs. It has also been ascribed the effect of rendering the red corpuscles more resistant to destructive processes. I give arsenic in the form of Fowler's solution, beginning with 3 drops three times a day and gradually increasing the dose to 12 or 15 drops. I have seen no results from arsenic given subcutaneously or intravenously, such as salvarsan or sodium cacodylate. When given by the mouth the effect is sustained and continued. Because of the degeneration of the liver salvarsan should be used with caution. The danger of its administration is perhaps negligible compared with the shock of splenectomy, appendectomy and cholecystectomy under general anesthesia, yet a few deaths have occurred following its use at Johns Hopkins Hospital.

As an example of the favorable response to this method of treatment, a brief history of a few cases is given. Similar results were obtained in many others. As improvement began immediately after the treatment was begun, it could hardly be a coincidence in all cases. No cures are expected. If the bone marrow is completely degenerated, no response to this plan of treatment or any other can be looked for. This report includes three cases in one family that came under observation four years and ten months ago and they are still alive. One of these has had no relapse and is quite active, one is now under observation for her first relapse since 1917 and in three weeks has shown no response to treatment. The other patient treated by other methods has had two relapses, but is now in a remission. The report also includes a patient seen in 1911, who has not had a relapse since. Although he has not recovered, as shown by the blood findings and anacidity, he is practically symptom free. The fact that some patients, in spite of pernicious anemia, may enjoy many years of active life, seems not to be generally recognized. Patients living from nine to nineteen years have been reported¹⁴

by Stockton, Billings, Fitcher, Dock and others.

CASE 1. Miles M., aged 58, single, hotel keeper.

Family History.—Father dead, 86, kidney trouble; mother dead, heart trouble. Mother was anemic and had periodic spells of diarrhea without cause for over ten years before her death. Had three maternal aunts that were anemic and had spells of diarrhea; one died at the age of 40 of dropsy and two from heart trouble at the ages of 55 and 60. One brother died of pneumonia at 35. One brother has heart trouble. Two sisters are living and well. A brother and sister have "pernicious anemia."

Past History.—Diseases of childhood. Pneumonia at 45. Denies venereal diseases. Used alcohol moderately. No tobacco.

Present Complaint.—Weakness, shortness of breath, palpitation of heart and swelling of feet and ankles. For the past five years has had spells of weakness and palpitation of the heart. These spells were associated with diarrhea and sore mouth, from which he suffered periodically ever since a small boy. In the present spell, which began about six or eight months ago, he has had swelling of the feet and ankles, marked weakness and so much palpitation of the heart and shortness of breath that he had been diagnosed and treated for several weeks for heart trouble.

Examination.—Skin is a lemon yellow tint. Mucous membrane very pale. Bad pyorrhea and a good deal of dental work. There is a loud systolic murmur over the precordium and a venous hum over the right jugular bulb. Marked edema of lower extremities. Spleen palpable. Gastric contents show no free hydrochloric acid with a total acidity of 10. Blood examination revealed: Hb., 25 per cent.; red cells, 1,200,000; leucocytes, 3,400.

Treatment consisted of rest in bed with forced feeding. Dilute hydrochloric acid before and after meals and Fowler's solution. After the first week in the hospital he made a slow but uninterrupted improvement. The blood examination on September 6, 1917, showed Hb., 62 per cent.; red cells, 2,992,000; leucocytes, 4,800. On November 22, 1917, the blood examination revealed: Hb., 73 per cent.; red cells, 3,440,000; leucocytes, 5,200.

He has worked hard ever since leaving the hospital in 1917, has had no relapse and at present is feeling well. However, he still has an achylia gastrica and a blood examination on April 18, 1922, showed: Hb., 82 per cent.; red cells, 2,934,000; leucocytes, 4,050; color index, 1.39; volume index, 1.35; slight poikilocytosis and moderate macrocytosis. Platelets few. No reticulated cells found.

CASE 2. Mary M., aged 46, single. Menstrual history negative. School teacher until 1908, since then in hotel business. Admitted June 28, 1917, discharged August 20, 1917.

Past History.—Usual diseases of childhood. Frequent attacks of tonsillitis when a young girl. Flu in 1918.

Present Complaint.—Weakness, anorexia, diarrhea, shortness of breath and swelling of feet and ankles. Has had spells of diarrhea off and on since 1908 (probably due to achylia). In 1909, 1910 and 1911 had spells of diarrhea lasting a couple of weeks, accompanied by weakness. In 1911 felt so weak that she took a rest treatment and was given an iron tonic (probably pernicious anemia at that time). After this felt well and was symptom free (remission?) until 1914 when she again had a recurrence of her old symptoms—weakness, diarrhea, etc. At this time her friends told her she looked yellow. Following two months' bed rest she again improved, felt well and worked hard until 1916, when

the above train of symptoms recurred and continued until she came under my observation in June, 1917.

Examination at this time disclosed lemon yellow color. Afternoon temperature of 100. Bad oral sepsis. Loud systolic murmur over precordium. Palpable spleen. Edema of feet and legs. Urine negative. Stools watery, no ova. Stomach contents showed an acidity. Blood examination revealed Hb., 27 per cent.; red cells, 1,300,000; leucocytes, 4,200.

Treatment consisted of rest in bed, forced feeding and hydrochloric acid and arsenic. Improvement began at the end of the first week. Three weeks after admittance the teeth were extracted, which was followed by moderate hemorrhage lasting twenty-four hours. On discharge from the hospital August 20, the blood examination showed Hb., 74 per cent.; red cells, 3,426,000; leucocytes, 5,400. She returned home and resumed her duties without a definite relapse until December, 1921. She came under observation again on April 15, 1922. Symptoms and findings were practically the same as in 1917. Blood examination on April 16 revealed: Hb., 37 per cent.; red cells, 1,608,000; leucocytes, 3,600; macrocytosis, poikilocytosis, color index, 1.16; volume index, 1.22; moderate number of platelets and reticulated cells 1 per cent. So far she has shown no improvement and probably will not, yet the platelets and reticulated cells would indicate that she is not hopeless.

CASE 3. Richard M., aged 42, single. Past history negative except for diseases of childhood. Consulted me in the office on September 9, 1917, on account of a sore tongue, which had bothered him for several weeks. He did not feel weak and had no other complaint. He had no evidence of oral sepsis. A blood examination showed: Hb., 55 per cent.; red cells, 2,640,000; the stained smear was typical of pernicious anemia.

He felt so well that he refused to take any treatment. About a year later he began to have symptoms similar to those of his brother and sister and went to the Mayo Clinic, where the diagnosis of pernicious anemia was confirmed. He has not been under my observation, but his brother reports that he has had two relapses since my diagnosis nearly five years ago. He is now in a remission.

CASE 4. Mr. W., aged 55, clerk, widower, no children. Was a steady drinker for years, but none for the past four years.

Present Complaint.—Weakness and spells of nervousness. He has been troubled for the past twelve years with spells of diarrhea, insomnia and lessened powers of endurance. After a few weeks these spells would improve and at no time did they incapacitate him for work. In 1918 he had a very sore mouth for three or four weeks. In June, 1921, he began to feel weak and about the same time noticed a numbness and tingling of the extremities. In August he had to give up his work on account of a gradually progressing asthenia. For two months symptoms of psychic irritation, such as irritability, spells of despondency and insomnia have been quite marked.

He was seen in consultation on November 30, 1921. The main features of the findings at this time were distinct lemon color of the skin, temperature 99½, systolic murmur over apex of heart, palpable spleen, exaggerated reflexes and "acro-ataxia" (Hoover). There was no sign of oral sepsis and the pupils were negative. Blood examination revealed: Hb., 49 per cent.; red cells, 2,466,000; leucocytes, 5,100. The blood slide was typical of pernicious anemia. The Wassermann was four plus. He was then given three doses of .4 gram neo-salvarsan a week apart. On December 17, 1921, having had no other treatment for two weeks than the three doses of salvarsan, his blood count showed:

Hb., 39 per cent.; red cells 2,072,000; leucocytes, 5,300. The syphilitic treatment was now discontinued and he was put on Fowler's solution and hydrochloric acid. Improvement began at once and on January 4, 1922, the blood count showed: Hb., 64 per cent.; red cells, 3,688,000; leucocytes, 4,800. In the latter part of January he developed a marked exfoliative dermatitis and fell under the care of dermatologists and syphilographers, who found the blood examination "practically normal" and excluded pernicious anemia. They instituted vigorous anti-syphilitic treatment. In spite of neo-salvarsan intravenously and mercury in the hip, about April 1st he began to feel weak and returned to me April 20. On this date the blood examination revealed: Hb., 44 per cent.; red cells, 1,584,000; leucocytes, 6,400; color index, 1.39; volume index, 1.45; moderate poikilocytosis; reticulated cells, 1.2 per cent.; platelets numerous and a few normoblasts.

CASE 5. Mr. G., aged 63, merchant. Family and past history negative. Admitted November 25, 1921, discharged January 2, 1922. Has been very moderate in the use of both alcohol and tobacco. Overworked during the war and had financial reverses during the past two years.

Present Complaint.—Weakness, dizziness, shortness of breath on exertion and swelling of the feet. Symptoms began about two years ago. He continued to work until ten days ago. A sore mouth for the past month. No diarrhea.

Examination.—Skin is a light lemon tint. The mucous membranes are very pale. Systolic murmur heard over the pulmonary area. A venous hum over the right jugular vein. Edema of the feet and ankles. Gastric anacidity. Gums are badly retracted, but there is no evidence of active pyorrhea; X-ray films show no apical abscesses. Blood examination revealed: Hb., 32 per cent.; red cells, 1,576,000; leucocytes, 3,200.

He was sent to the hospital and given the usual treatment—rest, forced feeding, dilute hydrochloric acid and Fowler's solution. The following are the blood examinations made while under treatment:

November 29, 1921. Hb., 35 per cent.; W.B.C., 3,200; R.B.C., 1,480,000.

December 17, 1921. Hb., 39 per cent.; W.B.C., 4,000; R.B.C., 1,840,000.

January 18, 1922. Hb., 58 per cent.; W.B.C., 4,200; R.B.C., 2,864,000.

January 31, 1922. Hb., 74 per cent.; W.B.C., 4,600; R.B.C., 3,504,000.

During the five weeks' hospital treatment he gained ten pounds in weight.

CASE 6. Mrs. K., aged 40. Husband and three children living and well; no children dead; no miscarriages. Menstrual history negative.

Present Complaint.—Weakness, loss of appetite, numbness of feet and legs, nervousness, inability to sleep and a loss of nineteen pounds in weight. Trouble began about eight months ago with a loss of appetite and weakness. About four months later she developed a sore mouth; because of this, on the advice of her physician, most of her teeth were extracted. Since then she has not been able to take any food except a little milk (about 2 glasses each day). Her symptoms rapidly progressed. She has had a diarrhea for the past week.

Examination.—Temperature 99.4, pulse 100, blood pressure 90, venous hum over jugular vein, marked pallor with slightly yellowish tint, spastic gait, exaggerated reflexes, bilateral Babinski and mental symptoms. Blood examination revealed: Hb., 41 per cent.; red cells, 1,900,000; leucocytes, 3,600; slide typical of pernicious anemia. Wassermann test was negative.

Treatment consisted of rest in bed, forced feeding, Fowler's solution and dilute hydrochloric acid.

Subsequent blood examinations:

October 12, 1920. Hb., 47 per cent.; W.B.C., 5,200; R.B.C., 2,032,000.

October 22, 1920. Hb., 50 per cent.; W.B.C., 3,800; R.B.C., 2,632,000.

November 3, 1921. Hb., 62 per cent.; W.B.C., 5,000; R.B.C., 3,088,000.

At this time the mental symptoms were so marked that it was necessary to confine the patient to a sanitarium. She remained in the sanitarium a number of months and her mental symptoms are greatly improved.

Her blood examination on May 1, 1922, revealed: Hb., 71 per cent.; red cells, 3,432,000; leucocytes, 3,860. She is now symptom free except for a spastic gait with tingling of fingers and toes. She has increased in weight from 115 to 145 pounds.

CASE 7. This patient has had a remission for eleven years and two months and is now feeling well without any signs of a relapse. He was first seen in February, 1911, in consultation with Dr. Chase of Shawnee, Kansas, and the diagnosis of pernicious anemia was made. The history and findings obtained at that time are as follows:

Mr. G., aged 47, farmer married, 3 living children, none dead. There is nothing of importance in his personal history except that he has had digestive disturbances for many years and has been "careful about diet."

Past Illnesses.—Usual diseases of childhood. Since 1904 has had two or three spells of diarrhea and sore mouth (achylia?) each year, some of these lasting two or three weeks.

Present Trouble.—Began about nine months ago with diarrhea and weakness and he thought it was the same kind of a spell that he had been having for years, but the diarrhea and weakness continued and for four months has been confined to the house. About two months ago his family noticed that he looked a "little yellow" and about the same time his feet began to swell. His appetite is poor and he has lost over twenty pounds in weight.

Examination.—The skin and sclerae have a distinct lemon tint. The mucous membranes and finger nails are pale. The pulse is 120, regular; blood pressure 115. There is a soft systolic murmur over the apex of the heart. The feet are edematous. Reflexes are normal. Blood examination showed: Hb., 35 per cent.; red cells, 1,400,000; leucocytes, 4,200; stained slide showed red cells with the morphological characteristics of pernicious anemia.

He was kept in bed for six weeks and given forced feeding, arsenic and hydrochloric acid. He kept up the medicine off and on for one year.

He was not seen again until three days ago when I asked him to come to the office for another examination. His blood now reveals the typical findings of pernicious anemia: Hb., 80 per cent.; red cells, 3,334,000; leucocytes, 4,250; color index 1.2; volume index, 1.2; macrocytosis; slight poikilocytosis; reticulated cells, .5 per cent. Stomach contents showed anacidity, total acidity 8 (probably had achylia gastrica for years prior to 1911).

He has been working ever since 1911 and has been symptom free, except for a slight numbness and tingling of fingers and toes, which is improving.

There are three features to be emphasized. First, all of these patients show certain conditions that are associated with impaired health, such as overwork, nerve strain, worry, dietary deficiency and diseased teeth. It is interesting to note that many of these patients, prior to the time a pernicious anemia was diagnosed, had a history of digestive troubles go-

ing back ten to twelve years, and attacks of diarrhea over a period of years.

The second feature is that patients who are in long remission still show blood findings characteristic of pernicious anemia, indicating such patients probably never permanently recover. Even in a patient who has lived eleven years without a relapse and has been quite active, the blood was examined two days ago and he had the morphological features of pernicious anemia.

The third feature is the response to treatment by this method. Although patients improve slowly (from four to eight weeks' rest in bed being required) I believe from my experience of twelve years with this type of treatment that patients with this disease have a better chance for long life by this method than by blood transfusion or splenectomy.

920 Rialto Bldg.

REFERENCES

1. Quoted by Moynihan: *The Spleen and Some of Its Diseases*, 1922, p. 62.
2. Barker, L. F. and Sprunt, T. S.: *The Jour. A. M. A.*, Dec. 8, 1917, Vol. LXIX, pp. 1919-1925.
3. Minot, G. R. and Lee, R. I.: *Boston Med. and Surg. Jour.*, Vol. CLXXI, 1917, pp. 761-773.
4. Mayo, W. J.: *Archives of Surg.*, 1921, Vol. 2, pp. 185 to 195.
5. Hitzrot, J. M.: *Annals of Surgery*, 1922, Vol. LXXV, No. 1, pp. 31-37.
6. Minot, G. R.: *Oxford Medicine*, 1920, Vol. II. Chap. XVI, pp. 589-679.
7. Robertson, O. H.: *The Effects of Experimental Plethora on Blood Production*, *Jour. Exper. Med.*, 1917, Vol. 26, pp. 221-237.
8. Editorial, *Jour. A. M. A.*, 1914, Vol. 62, pp. 1894-1895.
9. Cederburg, Armas.: *Berl. Klin. Wochenschr.*, Vol. LI, 1914, pp. 585-589.
10. Pilcher, J. T.: *Am. Jour. Med. Sc.*, 1913, Vol. 146, pp. 226-229.
11. Hartman, H. R.: *Am. Jour. Med. Sc.*, 1921, Vol. 162, pp. 201-206.
12. Hunter, Wm.: *Brit. Med. Jour.*, 1922, pp. 421-426.
13. McPhedran, Alexander: *Am. Jour. Med. Sc.*, 1910, Vol. 140, pp. 261-265.
14. *Jour. A. M. A.*, 1919, Vol. 73, p. 636.

AN UNUSUAL CASE OF STILL'S DISEASE

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Still was the first to describe a type of rheumatoid arthritis in children characterized by a progressive enlargement of the joints, lymph glands and spleen.

The onset of this type of arthritis is before the second dentition, usually before the age of six. According to Still, the disease starts insidiously, with stiffness of one or more joints which gradually enlarge. The enlargement consists of thickening of the tissues around the joints, and not of bony enlargement. There are no bony deformities. Effusion is absent. There is always limitation of movement, so that the children become bedridden, largely because of the rigid flexion of all the joints. The enlargement of the joints is always sym-

metrical, without suppuration or bony ankylosis. The muscles of the extremities atrophy. The lymph glands, most commonly next to the affected joints, become enlarged. There may be, however, a general enlargement. The spleen is invariably enlarged. The heart does not show any valvular lesions but hemic murmurs are frequently heard during life. There is often arrest of body development. The disease is slow in its course but fatal.

The case here reported corresponds so well with the description given by Still that in spite of the few unusual features we felt justified in classifying it as a case of Still's disease.

Patient entered the Kansas City General Hospital April 11, 1921. He was 15 years old. His chief complaints were, blindness, deafness, and tremendously enlarged lower extremities.

F. H.: Mother dead, cause unknown. Father living and well. Two brothers living and well. No miscarriages in family. Father denies venereal diseases.

P. H.: Normal birth and development. Perfectly well up to the age of 4. At this age fell and

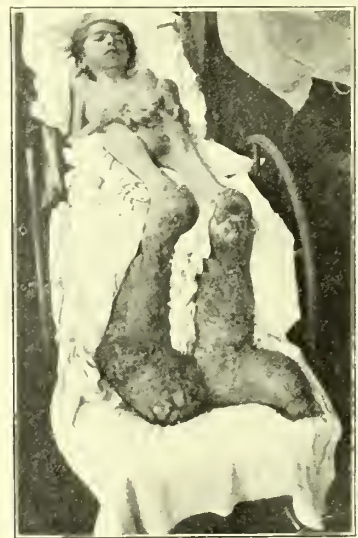


Fig. 1.

injured left ankle. Had pains in left ankle for a few months which finally subsided.

Present Illness.—At the age of 6 the left knee began to enlarge without fever or other systemic disturbances. There was periodic pain associated with it; that is, he would have dull pains for a week or so and be free from it for several weeks. During periods of pain he would have to stay away from school, but would resume work in the intervals free from pain. In spite of all available treatment and expert orthopedic care, the other joints began to enlarge, until at the age of 11, all the joints of the upper and lower extremities were enlarged and rigidly flexed, and thus made this child bedridden. In spite of repeated negative laboratory and other findings of congenital syphilis it was still thought that the condition might be syphilitic, and the child was accordingly given a number of salvarsans at some of the clinics without any improvement. The pain

was constant and the child had to be kept under morphine most of the time.

In Oct., 1920, the lower extremities from the knees down to the toes began to swell, and in a few months reached the elephantiasis as shown in the photographs. Around October, 1920, this boy lost his hearing. This was followed in a few months by a complete loss of sight.

On entrance into the Kansas City General Hospital this boy presented the following picture: Very



Fig. 2.

anemic and emaciated. Skin dry and atrophic, with wart-like nodules scattered over arms, hands, and lower extremities. These nodules were ranging in size from one-half to four cm. Those on the legs were ulcerated, with dirty, foul-smelling bases. The borders of some of these ulcers were sharply outlined, "punched out," as it were, whereas others had ragged and undermined borders. The bases of the large ulcers were full of vermin. The odor from these ulcers was so offensive that it was necessary to put the patient in a separate ward at the isolation hospital.

His head was large and square, with prominent frontal bosses. Eyes, conjunctivae showed irregular opacities; pupils, equal, regular, and dilated; optic discs very pale, suggesting atrophy. Nose neg. Mouth and throat neg. Ears neg., except for complete deafness of central origin. Neck, lymph glands enlarged; thyroid not palpable. Chest neg. Lungs neg. Heart, apex beat within the seventh interspace, 2 cm. from nipple line; left border 3 cm. beyond nipple line. Soft systolic murmur most marked at apex, but also heard all over the precordium. Rhythm regular, rate 90-100.

Upper Extremities.—All the joints from the shoulders down to the terminal phalanges were enlarged, tender, and rigidly flexed. There was no effusion in any of the joints. The muscles of the arms and forearms showed marked atrophy. Scattered over the arms, forearms, and fingers were nodules ranging in size from that of a pea to that of a dime.

Lower Extremities.—The muscles of the thighs were completely atrophied. The joints enlarged and tender but without effusion. The legs and feet were tremendously swollen, giving a picture of elephantiasis. There was no pitting on pressure. The knee joints were rigidly flexed compelling this boy to assume a semi-sitting posture in a special chair, as shown in the photograph. The skin was covered with hard nodules, ranging in size from 2 to 4 cm. These were circumscribed, horny, epidermal proliferations. The large nodules were ulcerated. Some ulcers had irregular undermined borders, while others had sharp raised borders with grayish, foul-smelling bases, resembling syphilitic ulcers. Several toes sloughed off.

Genitalia: No pubic hair. Testicles soft and small. Penis small.

Laboratory Findings.—Blood: hemoglobin, 50 per cent. Red cells, 3,390,000. Whites, 22,000. Differential count: Polymorphonuclear, 65 per cent. S. L., 32 per cent. L. L., 4 per cent. Eosinophiles, 1 per cent. Blood Wassermann negative three times. Spinal fluid Wassermann negative. Noguchi negative. Gold chlorid 12,210,000,000. Urine not obtained due to incontinence.

X-Ray Report.—According to the X-ray report on the amputated legs there was thinning of the bone shafts, enlargement of the heads of the bones, with thickening and calcification of the soft parts around the joints. One knee showed an old fracture just below the heads of the tibia and fibula, with apparent union. There was dislocation of the feet at the astragulo-scapoid joint.

The offensive odor together with the vermin found in the ulcers made it necessary to amputate both legs above the knees. The operation was performed by Dr. John Hayden under spinal anesthesia. The recovery was uneventful. He lived 8 months following the operation and died January 1, 1922.

The autopsy was performed by Dr. Wahl, pathologist of the University of Kansas Medical School, who gave the following findings: Thymus not found; pericardial sac normal; heart slightly enlarged 263 gms. Lungs normal. Liver 1,357 gms. in weight, 22x24x6½ cm., lobulated and irregular. Biliary passages normal. Spleen 320 gms., 16x3½ cm. (three times normal size). Capsule smooth. Pulp soft and friable. Malpighian bodies distinct. Kidneys: right, 180 gms. wt., 12x6x3½; left, 200 gms., 12x6x3½; both evidently enlarged. Capsule stripped with difficulty. Cortex thin. Glomeruli not well recognized. Ureters normal. Bladder normal. Gastro-intestinal tract normal, except for prominent Meckel's diverticulum. Brain: excess of



Fig. 3.

cerebrospinal fluid which was thick and opaque. Weight of brain 2,500 gms. No gross abnormalities.

Microscopic Pathology.—Section through one of the crusty nodules of skin showed marked thickening of stratum corneum and an increase of fibrous tissue in derma. Papillae quite marked with round cell infiltration. Pericardium thickened; myocardium fragmented, giving evidence of hypertrophy. On the whole practically negative. Lungs: some atelectasis, thickened bronchial walls, and increase in inter-

stitial tissue. No evidence of tuberculosis. Liver: picture of acute interstitial hepatitis. Cloudy swelling with diffuse general inflammation. Some pigmentation of cells with increase of fibrous tissue around portal veins. The whole picture was that of a terminal inflammation. Spleen: picture of chronic splenitis. Capsule thickened. Sinusoids more prominent. Hyaline changes in malpighian bodies. Kidneys: Cortex normal. Glomeruli thickened with beginning fibrosis. Disintegration and degeneration of tubular epithelium. Areas of calcification in tubules. Foci of lymphoid infiltration. The whole picture was that of chronic nephritis. Lymph node: Small areas of necrosis. No suggestion of tuberculosis or syphilis. Marked fibrosis. Picture was that of a chronic inflammation. Optic nerve: some atrophy and diffuse foci of lymphoid cell infiltration.

COMMENT

The autopsy findings were quite a revelation. They did not show any evidence of syphilis or tuberculosis as expected by everybody who looked at him. The findings were those of a chronic infection belonging to the group of rheumatoid arthritis. Comparing the findings in this case with those described by Still, one finds so many features in common that this unusual case should be classified as a case of Still's disease.

In the latter the first symptoms usually begin before the age of 6, whereas in this case pain in the ankle started at the age of 4, following a slight injury. The symmetrical and progressive enlargement of the joints without suppuration or bony destruction corresponds well with Still's findings. The progressive enlargement of the lymph glands and spleen so characteristic of Still's disease is very marked in this case, where the spleen is three times its normal size.

The unusual features in this case, however, are the elephantiasis of the legs, the blindness and deafness. The elephantiasis is evidently due to the inflammation in the lymph glands next to the affected joints, causing an obstruction to the lymph flow from the extremities. The optic atrophy, corneal opacities, and deafness are hard to explain, unless caused by the same toxins or bacteria that caused the joint changes.

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THE DIAGNOSIS OF LESIONS OF THE ESOPHAGUS*

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This paper is read with the idea of presenting some of the most frequently used methods of diagnosis of esophageal lesions. The scant attention given to pathological conditions in the

esophagus in the ordinary textbooks of medicine and surgery leads me to a fuller presentation of the symptomatology and diagnostic procedures of some of the more common lesions of the adult esophagus, namely, diverticulæ, cancer and cardiospasm.

The esophagus is usually described as that portion of the alimentary canal between the pharynx and the cardiac end of the stomach. It begins at the level of the cricoid cartilage in front, which corresponds to the level of the sixth cervical vertebra behind. It ends at the lower border of the eleventh thoracic vertebra or at the beginning of the twelfth rib. The length is 25 cm. or 10 inches. The lumen averages 1.5 to 2 cm. in diameter, being narrowest at the esophagopharyngeal juncture, at the bifurcation of the trachea, and at the cardiac orifice. The organ has three coats—muscular, submucous and mucous. The muscular coat consists of an outer longitudinal muscular layer and an inner circular muscular layer. The longitudinal layer begins as three bands, one anterior and two lateral, leaving a slight V-shaped hiatus on the posterior wall where the mucosa is uncovered, except for the lower fibres of the inferior constrictor muscle of the pharynx and the thin layer of circular muscle. The upper one-fifth of the longitudinal layer is striated muscle, the next fifth is mixed striated and smooth, and the lower three-fifths is smooth muscle. The circular layer is smooth muscle throughout. The submucous coat consists of loose areolar tissue, in which are embedded the racemous mucous glands of the esophagus. The mucous coat is lined throughout with stratified squamous epithelium.

The esophagus is conveniently divided into a cervical portion 5 centimeters in length, a thoracic portion 18 centimeters in length and an abdominal portion 2 centimeters in length. These divisions also serve well for the lesions which will be discussed, as diverticulæ usually affect the cervical portion, cancer is most frequently found in the thoracic portion, and cardiospasm is always found in the abdominal portion.

Rokitansky, in 1840, first described diverticulæ of the esophagus, classifying them as traction and pulsion types; the former resulting from tension without the esophagus and the latter from pressure within the esophagus. Traction diverticulæ usually occur in the middle third of the esophagus, rarely give symptoms and are most often autopsy surprises. Pulsion diverticulæ, according to Plummer, occur on the posterior wall of the esophagus, at the pharyngoesophageal juncture at the Lanier Heckermann point or pharyngeal dimple. It is here that the mucosa is unsupported by the stronger longitudinal muscle fibres. Pouching of the mucous membrane between the fibres

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of the inferior constrictor muscle of the pharynx and the circular layer of the esophagus is more easily accomplished. The physiological narrowing of the lumen at this point, together with abnormal intraesophageal pressure in swallowing, are advanced as causes for their occurrence. Other factors as yet undiscovered enter into their formation, otherwise we might all develop the lesion.

Judd, in a report of thirty-five cases, gives 54 years as the average age for the condition. The average duration of symptoms was five and a half years. The symptoms most frequently complained of at the onset are dryness and scratchy feeling in the throat, dysphagia, gurgling noises on swallowing, and regurgitation of food particles at variable intervals after ingestion. Plummer calls attention to the fact that enlargement and elongation of the sac takes place with its neck in the axis of the proximal esophagus, and, as the sac increases in size, the opening into the distal esophagus becomes narrow and slit-like, thus preventing food from entering the stomach. As the sac enlarges it usually extends backward, downward and to the left, often presenting as a lump on the left side of the neck below the cricoid cartilage. It may reach a capacity of 12 ounces or more. By pressure on the lump, food may be forced back into the pharynx. This gives rise to coughing spells and might lead to asphyxiation of an unconscious patient on the operating table. Nocturnal regurgitation is often met with, giving rise to excessive coughing and loss of sleep. The closing of the lower esophagus leads to rapid emaciation from starvation, and such cases are often grave surgical risks. In Judd's series the average weight loss was 27 pounds.

Given a patient of 50 years, complaining of dryness in the throat, dysphagia, gurgling noise on swallowing, regurgitation of food and mucus, and progressive weight loss, the following procedures will usually result in a correct diagnosis: The patient is given some fluid to swallow and the effect noted, then some solid food, and observed; if any tumor should appear in the neck its size and location are recorded. The succussion splash may be elicited in the sac in some cases by shaking the patient.

Remembering the following measurements: Incisor teeth to uvula, 7 centimeters or $2\frac{3}{4}$ inches; incisor teeth to beginning of esophagus, 15 centimeters or 6 inches; incisor teeth to level of tracheal bifurcation, 25 centimeters or 9 to 10 inches; incisor teeth to cardiac orifice of stomach, 40 centimeters or 16 inches; a medium-sized stomach tube is gently passed into the esophagus, and if a diverticulum is present an obstruction will be met between 15 and 20 centimeters from the incisor teeth. As-

piration will often bring up previously ingested food in varying stages of decomposition, but with an alkaline reaction, showing that it has not been in the stomach. Next the patient is given 6 yards of ordinary buttonhole twist silk thread, wound on a spool, and told to swallow 3 yards in the afternoon and 3 yards the following morning. This procedure for diagnosis was popularized by Plummer in 1910, following Dunham's use of the string in forcibly dilating esophageal strictures by bringing the lower end of the thread out through a gastrotomy wound and drawing the sounds through with it. Mixter modified Dunham's technic by allowing the thread to descend far enough into the intestine to become fixed, so that it could not be drawn out with the ordinary tension, and used the thread as a guide for his dilating sounds.

After the patient has swallowed the silk, a medium-sized stomach tube is threaded over it, and again passed into the esophagus with the thread loose. It will be found to meet the obstruction as before. The thread is then drawn taut and the point of the tube will be raised a distance, which is the measure of the depth of the sac. Pressure on the tube with the thread taut will then force it into the lower esophagus and on into the stomach. The pocketing of the tube high in the esophagus makes the diagnosis practically certain. A metal olive with a whalebone staff threaded on the silk string and passed in a similar manner gives the same findings. The use of Zenker's and Leube's diverticulum sound, Sahli's dilating sound, Straus' volume measure, Rumpel's modified double sound and the esophagoscope are mentioned, but their use requires a technical skill not commensurate with their diagnostic value. Fluoroscopic and roentgenographic examination makes a more certain diagnosis and at the same time causes less discomfort to the patient. While behind the fluoroscopic screen the patient is given a tablespoonful of a thick mixture of barium and syrup of acacia, and if a diverticulum is present the sac will be seen to fill, when its size, location and relations to neighboring structures may be easily made out. The patient is then given a tablespoonful of barium gruel mixture, and plates are made in the anterior, posterior and the three-quarter lateral position, with the patient standing.

Cancer of the esophagus occurs much more frequently than is ordinarily supposed. McCrae states that 9 per cent. of all the cancers seen at the Royal Victoria and the Montreal General Hospitals were of the esophagus. In his series of cancer cases, esophageal lesions were exceeded only by carcinoma of the stomach, uterus, female breast and colon, in the order named. It is a disease of late middle life,

occurring most frequently between the ages of 50 to 60. The most frequent site for the lesion is at the level of the tracheal bifurcation in the thoracic portion of the esophagus at a point 25 centimeters from the incisor teeth. The growths which occur at the cardia are usually extensions of stomach cancers. The primary esophageal growths are squamous cell carcinoma, while if the growth is one of extension it is adenocarcinoma.

The earliest symptom is usually dysphagia, which is progressive. Difficulty in swallowing dry, solid foods, with a feeling of obstruction behind the sternum, is often the first thing noted. Next, soft foods and, finally, liquids are obstructed. Immediate regurgitation of the swallowed food next arises, which becomes delayed as dilation of the esophagus takes place. Sloughing of portions of the growth may open up the tract and give a false idea of improvement. There is a rapid loss of weight and strength, often out of proportion to the symptoms complained of. McCrae quotes: "With a steady loss of flesh, with increasing dysphagia in a middle-aged or elderly person, suspect cancer; if sound is arrested, diagnosis is probable; if slight bleeding with use of sound, it is all but certain." Plummer's method of the string-guided olive is most valuable in these cases, to prevent perforation. By starting with a large olive, the location of the upper limits of the obstruction may be made out; by decreasing the size of the sound until one is found which will just pass the obstruction, and on withdrawing it noting the first evidence of resistance of the stricture, will give the lower limits of the lesion. By comparing these two measurements, a very good idea of the exact extent of the growth will be gained. The fluoroscope and roentgenograms are usually diagnostic, and show, besides its location, the amount of dilatation of the esophagus above. The irregular filling defect near the point of maximum obstruction, as well as the canalization of the growth, are the characteristic features.

In 1878, Von Ziemssen and Zenker collected the first series of cases of the esophageal lesion known as cardiospasm. Many causes have been advanced for the condition, according to Plummer, who states that Meltzer favors the theory of primary cardiospasm. Rosenheim asserts the condition is due to primary atony of the muscle wall of the esophagus; Kraus believes that it is due to a paralysis of the vagus fibres to the esophagus; while Fleiner, Zenker and Luschka feel it arises in those congenitally predisposed. Many of the later authors agree with Plummer and Vinson that the condition, in the majority of instances, is a definite entity and not secondary to other lesions, as gastric ulcer, carcinoma, gall-blad-

der disease or appendicitis. Plummer and Vinson report 301 cases, with 75 per cent. occurring between the ages of 21 to 50. As the average duration of symptoms is seven and a half years, it is seen to be a disease most frequently found in the fourth decade. Dysphagia is an early symptom, which may vary from a feeling of a slight obstruction at the cardia to total obstruction for solids and liquids. Smithies called attention to the fact that, in this disease, liquids cause dysphagia even more frequently than solid foods, thus differing from organic stricture. There is often a marked loss of weight. Males and females are attacked in about equal proportion. Regurgitation of food is apt to occur soon after it is ingested in the early cases, but later, as the esophagus dilates, it may be delayed one or two days. Nocturnal regurgitation of undigested and decomposed food, mixed with large amounts of mucus, is a frequent occurrence, and this may give rise to coughing. The regurgitation occurs without the effort of ordinary vomiting. Pain in the epigastrium radiating subternally to the back is often complained of. The diagnosis is usually not difficult. Given a patient of 25 to 35, with a dysphagia, pain, regurgitation of undigested food and loss of weight, whose symptoms have not increased, and who has difficulty with solids and liquids, cardiospasm is to be suspected. The next procedure is to pass a stomach tube over a string guide, to determine if there is actual obstruction. Often this will cause regurgitation of food and mucus. A 45F olive on a whalebone staff is next passed, using the thread guide. If the bougie, after slight obstruction, passes fairly easily as the spasm is overcome, cardiospasm is the most probable diagnosis. The X-ray which shows the rather typical, cigar-tipped, smooth end, with or without dilation of the esophagus, will confirm the diagnosis. Diverticulæ of the lower portion of the esophagus are differentiated by the symptomatology, by Plummer's method of sounding and by the X-ray. Cancer of the cardia gives a different feel to the dilating olive, and it may be totally obstructed. The X-ray picture is usually different, although this cannot always be depended upon. Here the esophagoscope may be of differential advantage, but usually the history, sounding and X-ray give more dependable diagnostic evidence without so much discomfort to the patient.

In conclusion, I would restate that (1) the most common chronic lesions of the adult esophagus are diverticulæ, cancer and cardiospasm; (2) careful histories, painstaking physical examinations, the intelligent uses of the stomach tube, sounding by Plummer's method and X-ray studies will, in practically

all cases, lead to a correct diagnosis of lesions of the esophagus.

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BIBLIOGRAPHY

1. Bevan, A. D.: Diverticulae of Esophagus. *Journal A. M. A.*, 1921, Vol. 76, pages 285-288.
2. Fravel, R. C.: Cardiospasm, with Report of Cases. *Virginia Medical Monthly*, 1921, Vol. 47, pages 529-532.
3. Judd, E. S.: Esophageal Diverticulae. *Surg., Gynec. and Obstetrics*, 1918, Vol. 27, pages 135-141.
4. Kahn, M. H.: Carcinoma of the Lower End of the Esophagus. *Surg. Clin. of North America*, 1921, Vol. 1, pages 1725-1737.
5. McCrae: *Modern Medicine*, Osler and McCrae. Lea and Febiger, New York and Philadelphia, 2nd edition, 1915, Vol. 3, pages 76-105.
6. Mayo, Chas. H.: Diagnosis and Surgical Treatment of Esophageal Diverticulae. *Annals of Surgery*, 1910, pages 813-818.
7. Morris: *Human Anatomy*. P. Blakiston's Son and Co., Philadelphia, 6th edition, 1921, page 1167.
8. Plummer: Diverticulae of Esophagus, with Report of Six Cases. *Journal Minn. State Med. Assn.*, 1909.
9. Plummer, H. S.: The Technic of the Examination of Esophageal Lesions. *Journal A. M. A.*, 1910.
10. Plummer, H. S.: The Value of a Silk Thread as a Guide in Esophageal Technique. *Surg., Gynec. and Obstetrics*, 1910, pages 510-522.
11. Plummer, H. S., Vinson, P. P.: Cardiospasm, a Report of Three Hundred and One Cases. *Med. Clin. of North America*, 1921, Vol. 162, pages 353-369.
12. Rokitsansky: Quoted by Judd.
13. Smithies, Frank: Diagnosis and Clinical Manifestations of Cardiospasm, Associated with Diffuse Dilatation of the Esophagus. *Am. Journal Med. Sciences*, 1921, Vol. 612, pages 313-325.
14. Snodgrass, T. J.: Report of a Case of Cardiospasm, with Enormous Dilatation of the Esophagus. *Ill. Med. Journal*, 1921, Vol. 29, pages 339-342.
15. Van Ziemssen and Zenker: Quoted by Plummer.

DISCUSSION

Dr. Charles H. Wallace, St. Joseph: I believe we have all been entertained by the point brought out by Dr. McVay in the diagnosis of these three conditions. I want to mention one thing to which his paper does not refer, which I have observed in a period of twenty-five years as a general surgeon, which I have always thought of as what might be termed a pseudo-cardio spasm.

In some of these cases of gall-bladder disease and chronic forms of appendicitis there is present a slight temporary cardio-spasm that occurs periodically, which is absolutely relieved by the removal of the pathology in either one of these lesions and more especially in gall-bladder disease. These patients upon eating have often complained to me, especially if they ate rapidly, that there would be a slight arrest of the food at the epigastrium which was disagreeable. In my opinion the temporary arrest of the food was occasioned by the stomach being distended with gas, nature would arrest the food for a few seconds for the stomach to further distend for the reception of food that was rapidly delivered in an incompletely masticated state in rapid eating. It never resulted in regurgitation but it was a disagreeable sensation. With the correction of the pathology in these two regions there would be entire relief of this spasm.

Dr. J. J. Singer, St. Louis: The paper of Dr. McVay was very interesting and well presented. As a whole, it was distinct, and I think gives a definite message. However, in discussing diseases of the esophagus along this line I think it would be just a little bit more complete were the other factors of the compression of the esophagus with mediastinal tumors and masses discussed. It is frequently a very difficult matter to distinguish between an intra-esophageal disturbance and a mediastinal.

Doing a great deal of chest work we frequently have patients come in with difficulty in swallowing, and often it is due entirely to a gastro-esophageal pathology.

Dr. McVay: Dr. Wallace is right about the cases of pseudo-cardio spasm, which cause a spasm of the cardia, also a spasm of the pylorus. Those are the cases which require the administration of belladonna, to determine whether there is an actual lesion in the stomach. This drug will relieve the pseudo-cardio spasm almost entirely.

Dr. Singer's remarks in regard to the thoracic lesions are well taken. I did not discuss the traction diverticulae at any length because as a rule they do not cause symptoms. There is a type which arises from some condition in the chest, as tuberculosis of the peribronchilar lymph glands, which suppurate and contract, drawing out the esophagus and forming a traction diverticulum. Internal pressure in the esophagus then causes an enlargement of this sac, and thus the traction pulsion diverticulae, which have been described as autopsy findings by La Conte, are formed.

DIAPHRAGMATIC HERNIA—NON-TRAUMATIC: WITH REPORT OF FOUR ORIGINAL CASES*

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Diaphragmatic hernia caused by trauma is not rare. Congenital diaphragmatic hernia is quite infrequent. The clinical history can so simulate other diseases that, unless hernia is thought of, the patient will go through life with the true condition unknown. Symptoms may be few and not pressing. These are the cases to go undetected. My interest was aroused when in a single year I found three cases of hernia of the diaphragm with no known history of injury. In the following year I detected a fourth case with no known injury. Two of these patients were referred for a gastro-intestinal examination because of digestive disturbance. One patient was referred to confirm a pneumothorax. The fourth case was referred for an examination of the heart.

Etiology.—The causes of traumatic hernia are crushing injuries, gunshot wounds and injury of the diaphragm with the aspirating needle. For congenital hernia, probably an imperfect development.

Position.—The opening can be at any place in the diaphragm. In my four cases two had an abnormally large opening for the esophagus; two had openings through the dome of the diaphragm. Some reported cases have openings in the right and left diaphragm.

Symptoms.—The abdomen may be retracted. Pains are usually in the lower left chest, with a resonant note and absence of breath sounds. Vomiting is not always present; distention and dyspnea, at times regurgitation of food, obstruction, and if the hernia is partially strangulated, shock. The chest will show no change in ap-

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

pearance. The symptoms are those of interference of function and embarrassment of respiration. The gastro-intestinal symptoms may be absent.

Literature.—The literature is meager. In the May, 1920, issue of the *American Journal of Roentgenology*, Webster W. Belden, of General Hospital 41, says: "Prior to the Great War cases of hernia of the diaphragm, with either stomach or colon passing into the thor-

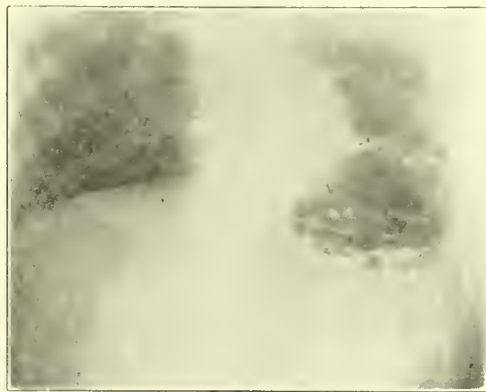


Fig. 1. Case 1. Mr. U. Note air bell with streaks of barium. First impression is one of eventration.

acic cavity, were decidedly rare. In fact, in 1908 the most recent text-books did not even mention the images furnished by this type of lesion."

Foster, in the *New York Medical Journal*, Vol. 112, page 77, 1920, reports a case that he says would have "remained a sealed book" except for the post-mortem examination. The patient, a young man 24 years old, was admitted to the hospital on account of severe indigestion. Said he had always had some trouble with the stomach and was subject to attacks of abdominal pains accompanied by nausea, but did not usually vomit. The case was regarded as chronic appendicitis. The particular attack which brought him to the hospital was similar to other attacks. The pains increased so that he soon was bordering on collapse. The temperature was normal and he was bathed in a cold sweat. Pains were localized over the left upper abdomen. The examination revealed a tympanitic note over the left lower chest to the fifth rib in the axillary line. Over this area the breath sounds were absent. The diagnosis was pneumothorax. The patient did not rally and died within twenty-four hours.

The post-mortem showed a diaphragmatic congenital hernia. The stomach and small intestines were in the thoracic cavity.

The *British Medical Journal*, Sept., 1919, reports a patient, a soldier, who suffered much pain after foods of any kind and was sick and

in the hospital much of the time. Was given medicines and duty with no improvement. Was sent home as a case of gastritis. He again entered the hospital and because of no improvement, willfully overstayed his leave of absence to gain discharge from the hospital. Applied for pension at home. Because of a wound on the abdomen and a corresponding wound on the back it was thought possible he might have an hour-glass stomach. The patient was now examined with the X-ray and found to have the greater part of the stomach in the chest cavity. This, of course, is classed as traumatic hernia.

Richard Warren, in the *Lancet*, Jan. 21, 1919, says: "Hernia of the abdominal viscera through the diaphragm is tolerably rare, but likely to be more common in the future as the result of battle wounds."

The records of the East London Hospital show seven cases. Three cases were gunshot injuries of the belly and chest. One patient was injured in a buffer accident.

Two cases, sixteen and thirty years old, gave no history of injury and were possibly due to congenital defects. Another case, a patient sixty-eight years old, with a long history of wasting and vomiting but no note of injury, may also be congenital.

Alexander Stewart MacMullen, Chief of X-Ray Service U. S. General Hospital No. 1,



Fig. 2. Case 2. Mr. C. Irregular heart's action and shortness of breath main symptoms. Plate is a twenty-four hour retest. Some barium in the colon. Bulb not seen.

in the *American Journal of Roentgenology*, March, 1920, says that among fifteen thousand cases examined in the X-ray laboratory of the hospital, three cases of diaphragmatic hernia were found. Two of these cases followed injury. The third case is uncertain. No injury was received but the patient had pneumonia in the left lung, lower lobe, empyema following, and he was drained, so there was a chance of an injury. It is of interest

that the diagnosis in each case was made in the roentgen laboratory.

John E. Grieve, *Archives of Pediatrics*, October, 1920, reports a child five and one-half years old. He says "the history of her illness, in a sense, preceded her birth, inasmuch as the mother at the time of her delivery and immediately thereafter was severely ill with whooping cough." Immediately after the birth the child was seized with attacks of

liver and the abdominal organs. I class this as doubtful.

Louis Frank, *Annals of Surgery*, Vol. 71, No. 3, 1920, reports a child sixteen years old, who has had indigestion from infancy. Vomiting is a prominent symptom. The history is irregular with gain and loss in weight. Because of the symptoms an obstructed pylorus was thought of. A Roentgen examination revealed the stomach in the chest.

The following four cases were detected in my laboratory:

CASE 1. Mr. U., 27 years old, states that he always has been short of breath, most noticeable after eating heartily. A feeling of oppression in the epigastric region, sometimes amounting to pain, would follow a heavy meal. The same condition was noticed after drinking more than an ordinary amount of fluid. The patient was well nourished. He had no scars on the belly or chest, and was never injured so far as he knew. He served two years in the late war. After his discharge, he with others, trying to establish a disability, presented himself for examination. Shortness of breath, pains in the left lower cheek, were the main complaints. The belly and chest are normal in contour. Breath sounds are absent over the left lower chest. The heart is slightly displaced to the right. Pneumothorax is diagnosed and he is referred to me to confirm findings.

Fluoroscopic examination showed a domed outline which I thought was the diaphragm. The first impression was one of eventration. A stereoscopic set of plates show a part of the fundus of the stomach above the diaphragm. The opening through the diaphragm is an enlarged opening through which the esophagus passes. About one-half of the stomach is in the chest cavity.

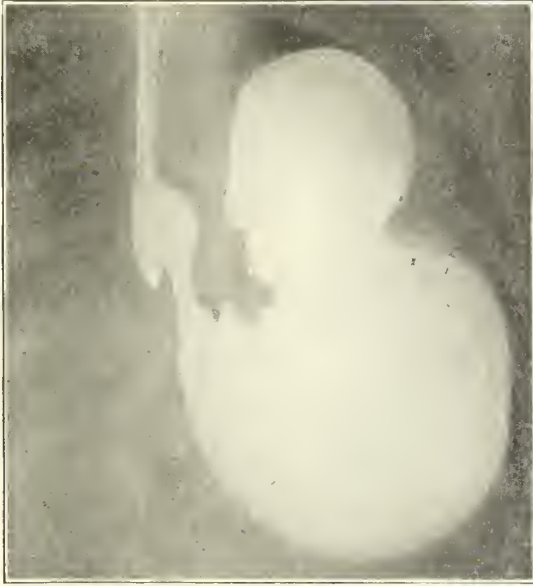


Fig. 3. Case 3. Mr. R. G. D. Shortness of breath with acute pains after eating or drinking. Quantity rather than quality determined severity of the attack. The stomach and bulb distended but not yet emptying. Esophagus gives the impression of emptying into the bulb. Lateral view shows it emptying low and back of bulb. Stomach would hold this position for minutes before the duodenum would fill.

coughing which continued to the fifth year. This child had trouble with digestion and vomiting was severe. Examination by the barium meal showed the stomach partially in the left chest." This case was likely not congenital but caused by the exertions of cough.

In the *Annals of Surgery*, April, 1921, Samuel Gitlow, and Ben Breakstone, report a patient, widow, sixty-five years old, chief complaint dyspnea, left chest, that dates back many years. No history of injury. After all tests at diagnosis, the X-ray revealed the stomach in the left chest.

The *British Journal of Surgery*, October, 1921, M. Fitz Maurice-Kelley, relates a case of double congenital diaphragmatic hernia, age thirty-five years. The colon only was involved. The pains come on suddenly followed by strangulation. This patient had suffered two attacks previously and had served two years in the war. The reporter makes his conjecture of congenital hernia, at the post-mortem examination, from the shape of the



Fig. 4. Case 4. Mrs. M. K. Plate 1. Shows a full stomach which would hold its form for minutes. Nearly the entire stomach is above the diaphragm.

CASE 2. Mr. C., twenty-nine years old, is referred for an examination of the chest, particularly of the heart. The heart's action is irregular during the periods of suffering and the breath is short. The pains are brought on by physical exertion and by hearty meals. There is no known injury. The condition was marked in early life, so marked that the patient could not take part in the usual school games. Physical examination shows no external marks of violence. The belly and chest form is normal.

Fluoroscopic examination shows the heart dis-

placed to the right and the air bell of the stomach above the diaphragm. Barium is given and part of the stomach is seen above and below the diaphragm. The opening in the diaphragm is about two inches from the esophageal opening. About one-fourth of the stomach is in the chest.

CASE 3. Mr. R. G. D., forty-nine years old, was referred for a gastro-intestinal examination. Complaint is of long duration but past three years noticed that a feeling of fullness after meals is getting worse. At times the pains are acute. Vomiting usually gave relief. What the patient ate mattered little, but the quantity would determine the acuteness of the attack. The color was good, the weight had decreased about twenty pounds in the past three years. Shortness of breath was marked when pains were acute. The pain point was the pit of stomach.

The examination showed about one-half of the stomach above the diaphragm. The lower part of the stomach was the first to fill and if no more was drunk the upper sac remained empty. To take more meant to fill the upper sac, when distress would begin. In this case you will see an unusual arrangement of esophagus, stomach and the duodenum. You will see from the plate that the esophagus empties to the liver side of the bulb. Whether this is a deformity of the stomach or whether it is due to a peculiar lifting up and tying of the stomach in this position, I am unable to say. There was no known history of injury.

CASE 4. Mrs. M. K., sixty-two years old, was referred for gastro-intestinal examination. Complaint dates back many years. For past five years, since loss by death in the family, she thinks the condition worse. Feels too full after eating, but pains are confined to the chest, as patient says, "thinks the chest will burst." If this patient can vomit, all pains are gone. Is spitting up some food regularly during the attacks and thinks the first meal of the day to cause the most pains. The patient is thin and is losing in weight and says she is suffering more often and more acutely than in former years. The pains are always in the chest just back of the sternum. Color fairly good. The

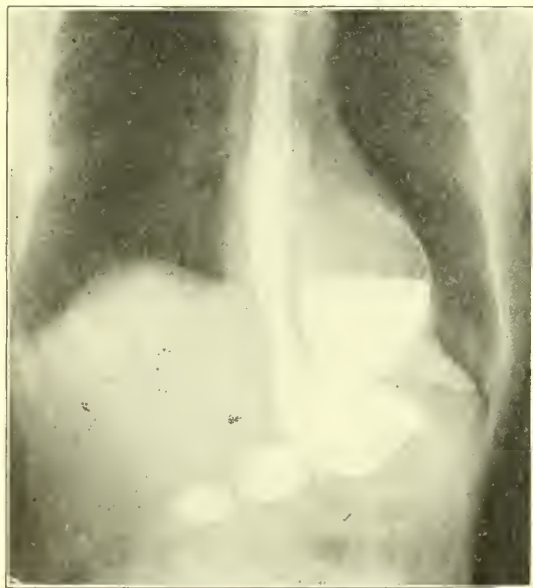


Fig. 5. Plate 2. Stomach emptying. Esophagus is seen full due to regurgitation. Plate taken 15 minutes after giving barium mixture.



Fig. 6. Plate 3. About twenty minutes after drinking the mixture. Stomach, except small portion, has regained normal position. Palpation could return the entire mass into the chest. Operation gave relief.

symptoms were very much those of an early partial obstruction of the esophagus.

Examining the patient under the fluoroscope the air bell was noticed above the diaphragm. Two glasses of barium mixture filled the stomach with the entire mixture above the diaphragm. Distress now became acute. Gaining the patient's confidence and assuring her that no harm would occur it was noticed that some of the barium was showing below the diaphragm. The stream was small but steady. It was noticed that the stomach was following as the barium came down into the belly. The barium was not going into the duodenum but the stomach was slowly coming through the diaphragm into its proper place. Practically the entire stomach was in a normal position after twenty minutes. By palpation the entire stomach, with the mixture, could be pushed back into the chest cavity. This was repeated a number of times on different days. The findings were constant. As the patient was of high nervous tension, it was noticed that irritability on the patient's part would prevent the filled stomach from gaining its normal position. The stomach passed in and out of the thoracic cavity through the esophageal opening. The patient submitted to operation. Two years after the operation the patient was comfortable.

These cases suffice to illustrate the extreme difficulty of diagnosis, even in traumatic cases. The diagnosis is much more uncertain when no injury has been received.

SUMMARY

Diaphragmatic hernia, traumatic, is uncommon, but not rare.

Congenital diaphragmatic hernia is very infrequent.

The history is unusual.

Digestive disturbance may be absent.

Thoracic symptoms may fairly predominate.

Viscera may pass in and out of the thoracic cavity.

The patient may be fairly comfortable.

The clinical history is misleading.

The condition is not fatal unless strangulation occurs.

We cannot be absolutely certain of the existence of non-traumatic hernia. Injury might have been received without a known history.

The use of the X-ray will quickly make plain the condition.

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BIBLIOGRAPHY

1. Foster, Nellis B.: New York Medical Journal, Vol. 112, p. 77, 1920, July 17.
2. British Medical Journal, September, 1919.
3. Warren, Richard: Lancet, January 21, 1919.
4. MacMullen, Alexander Stewart: American Journal of Roentgenology, March, 1920.
5. Grieve, John B.: Archives of Pediatrics, October, 1920.
6. Gitlow, Samuel and Breakstone, Ben: Annals of Surgery, April, 1921.
7. Fitz Maurice-Kelley: British Journal of Surgery, October, 1921.
8. Frank, Louis: Annals of Surgery, Vol. 73, No. 3, 1920.
9. Kessler, E. H.: Jour. Missouri State Medical Assn., June, 1919.

A STUDY OF THE CLINICAL AND RADIOLOGICAL FINDINGS IN PLEURISY*

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ST. LOUIS

X-ray in pleurisy is only one method of examination and is a great aid in helping the clinician to arrive at the exact conditions.

The word "pleurisy" is used ordinarily to cover a "multitude of sins," and it is the office of the X-ray to confirm or deny the existence of certain lesions and to keep the term "pleurisy" within its limits.

First, let us consider dry pleurisy: The clinical signs of this condition are very scant; a friction rub and a diminution in pulmonary expansion lead to its diagnosis. A partial dry pleurisy is seen as a small, irregular, localized, well-defined area in the lower two-thirds of the lung. Extensive dry pleurisy is seen as a large, generally unilateral area resulting from a chronic and extensive pulmonary affection. In early cases there is an obscurity at the base of the lung, the outline of the diaphragm is hazy and deformed and has lost its mobility to a large extent; also, the costo-diaphragmatic angle will be partially or totally effaced. In the older cases there is a definite deformity, the pulmonary field being deformed, due to a retraction of the chest. The ribs incline toward the spinal column and approach one another which causes an effacement of the inter-spaces and which may go so far as to cause a displacement of the heart.

Next, we will consider pleurisy with effusion. The loss of the tactile and vocal fremitus, the dullness and loss of expansion and displacement of organs in a large effusion make

the diagnosis a more or less simple matter. The difficulty lies in diagnosing the more moderate effusions, and this is where the X-ray plays an important part.

The value of the fluoroscope is not so much in making the initial diagnosis as it is in following the progress of the case. It enables one to make a more definite prognosis by noting from time to time whether there is an increase or a decrease in the amount of fluid, whether there is a greater or lesser displacement of the organs, and whether there is a re-establishment of the pulmonary function. The upper limit of the effusion is not sharply outlined, but on the screen is seen to shade gradually from the dark area which represents the fluid to the lighter area which represents the compressed lung. Gravity naturally causes the fluid to collect at the bottom of the pleural cavity thus making one look first at the diaphragm for trouble. At times, there are cases in which there is such a small amount of fluid without physical signs and only a flattened diaphragm is seen upon the screen. The diaphragm becomes immobilized early in the disease, as shown by a case of Barjon's. A patient of his had a severe stitch in the side and was fluoroscoped the same day, and all that was seen was complete immobilization of the diaphragm on the affected side and compensatory movement on the other side. There was no fluid in the chest. Twenty-four hours later the patient was re-examined and the affected side was seen to be half full of fluid.

Our physical diagnosis teaches us that, as the fluid rises, the lung is pushed upward and toward the hilus, which acts as an anchor. This does not allow the fluid level to form a straight line across the chest, but makes it slope downward from the back and outer side to the front and inner side of the chest in the shape of the letter S. However, this image on the screen is seen as a straight line because the fluid is so much denser than the lung tissue. No matter how much fluid is in the chest its level is always seen as a straight line and remains in the horizontal position, even if the patient is tilted from one side to the other. If the chest is hit gently or the patient shaken small waves will be seen to travel across the upper surface of the fluid. The facts that the fluid always tends to remain in the horizontal position and that the waves are produced, are the two most important factors in the positive diagnosis of fluid. There must, however, be a partial pneumothorax just above the fluid in order to get these two signs; if the lung tissue is down far enough to come in contact with the surface of the fluid it will not be disturbed by these movements.

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

The above signs make it necessary for all plates and fluoroscopic examinations of these fluid cases to be made in an upright position so that this fluid level will not be lost. The radiographer must also be acquainted with the history of the case so that there will be no possibility of calling a moderate amount of fluid a pneumonic consolidation of the lower lobe. Just above the fluid level the percussion note has a tympanitic ring, known as the area of Skoda's resonance. Upon the screen this does not look any different than other parts of the involved lung.

In these large effusions the pressure is of such greatness that the surrounding organs are displaced. If it is the right side that is affected the diaphragm will be seen to be flattened out against the liver and that organ pushed downward. The heart will be seen further to the left and crowding the left lung against the thoracic wall. When it is the left side that is affected the diaphragm is pushed downward, and may even be seen below the costal margin. This condition must not be mistaken for an abdominal tumor. When the diaphragm comes down so far on the left Traube's space will be occluded and the heart and mediastinum will be displaced toward the right. At one time it was thought that the heart was displaced by rotation at its base, but it has been proved that the heart and mediastinum are pushed over en masse.

An important part played by the X-ray is in following the case after retrogression has begun. If the effusion is being absorbed the level will be seen to be lower from time to time and the other conditions to come back to normal gradually. One thing that must not be overlooked is the fact that after withdrawing as much as one liter of fluid from a chest containing a massive effusion, the screen picture will seem to be unchanged and the fluid level in the same place as it was before tapping. This is explained by the elasticity of the chest wall and surrounding organs. In reality, the diaphragm is somewhat higher, the heart and mediastinum not quite so far over, and the ribs in a somewhat lower position. In other words, the chest has accommodated itself to the lessened amount of fluid and the fluid level still remains in the same place.

In considering the dry, interlobular pleurisy we find that it gives practically no physical signs and can be diagnosed only by the X-ray. Even to do this the tube must be raised to the level of the head in the anterior position and lowered to the pelvis in the posterior position, so that more of the diseased area can be seen. If the tube is on the same level with the diseased area just the edge of it is seen, and the pleurisy can very easily be missed.

The physical findings of an interlobular pleurisy with effusion are vague at first and remain so until the tenth to twelfth day, when a band of dullness may be percussed out across the chest. Radiologically, this is seen as a transverse, opaque band which entirely crosses the affected side of the chest and has a clear space above it and one below it. This band distinguishes the condition from a lung abscess—which is generally differently located and usually surrounded by a clear zone on at least two or three sides. An outline of the exact location of the fluid can be drawn upon the chest wall and in this way the surgeon can be told at what intercostal space it should be approached.

The clinical signs of a dry, diaphragmatic pleurisy are most often obscure, and the radiological signs are immobilization and deformation of the diaphragm and the appearance of a double contour with partial or complete disappearance of the costo-diaphragmatic angle.

The clinical picture of diaphragmatic pleurisy with effusion is one of poor health, tachycardia, and markedly intermittent temperature; i. e., a picture of local suppuration. The absence of fremitus and respiratory sounds and the presence of dullness are very important when present, but so often they are lacking.

The fluoroscope will show an opaque, horizontal band, several fingers in breadth, and situated at the base of the thorax. The difficulty is in determining whether this dark band is above or below the diaphragm, and often it is impossible to tell. If the effusion is on the left, the stomach can be inflated and the air bubble seen under it. If it is on the right, it is impossible to tell on account of the closeness of the liver shadow. Even if the differentiation is not definitely made out, the best location for the surgeon to do his work is again pointed out.

Mediastinal pleurisy is rare, but radioscopically the mediastinal shadow is seen to be wider than normal, and deformed. Posterior mediastinal pleurisy is seen as a dark band adherent to the vertebral shadow and extending from the hilus of the lung to the diaphragm; while the anterior pleurisy is seen to resemble an enlarged aortic shadow on the left, and on the right it forms an obscure triangle with its apex at the hilus and the base at the diaphragm.

Metropolitan Bldg.

DISCUSSION

Dr. O. H. McCandless, Kansas City: In Dr. Perry's paper, I would like very much indeed to emphasize his point with regard to the harm done by palpation during the meal ingestion. I have seen a stomach that would act normally on ingestion of the meal, but when palpated it would develop pyloro-

spasm and give the gross appearance of pathology. The man of limited experience is too prone to begin palpating the belly early in his examination. Give ample time for the meal to reach the dependent portion of the stomach before manipulation begins.

The anomalies of the duodenal gap were not mentioned. It is to be assumed that we are dealing with a normal individual when we describe the phenomena undergone under the described ulcer presentation. Anomalies are not infrequently mistaken for pathology. In one instance the cap and papilla of Vater joined so that the valvulae coniventes began directly distal to the duodenal gap.

In Dr. Kessler's paper, in regard to diaphragmatic hernia, I would like to emphasize the point of fluid in the chest cavity. On oscultation, the physician will bring the patient in with the report of fluid in the chest. The chief damage that has been done in these cases has been from an attempt at aspiration of the fluid-filled bowel in the chest. I think the only fatalities that have resulted have come from this cause in these cases.

Some four years ago I published a bibliography available from the Kansas City Medical Library with a report of a congenital right-side diaphragmatic hernia which contained the small bowel, appendix, and the stomach. The patient died of hypostatic lung congestion and an autopsy was obtained.

Several of the cases reported in that bibliography compare with Dr. Kessler's report.

As to Dr. Titterington's paper, I would say in reporting these we have always allowed for congestions and pleural thickenings, allowing the clinicians to make the final differentiation between the two.

Only one criticism have I to present, and that is the question of terminology. In the last paper, the word "radiographer" was used. I have felt that he was the man producing the X-ray film, and it is not to him our histories are to be reported. There is unfortunately lack of distinction in the different terms applied to our work, but it is to the radiologist, rather than the radiographer, that reports should be made. Whether my point is well taken with regard to the meaning of the term "radiographer," which I take it means technician, I do not know, but I have always understood it so.

Dr. Kessler: Dr. Perry has mentioned palpation—the carelessness of it. Personally, I had this brought home to me in the opposite way. I had an old gentleman, and unred the fluoroscope I saw an ulcer about the size of a walnut on the lesser curvature. I was afraid to palpate the lesion. I referred him to the surgeon who sent him and thought he had better operate on him immediately. About a year later he was returned for another examination for a different cause. He was rather an elderly man. I said, "Have you been operated on?"

"No."

I gave him a glass of barium mixture and his ulcer was there in the same way, and I wondered whether I could not have palpated it a year ago.

Dr. McCandless speaks of fluid in the chest. The cases I saw were old cases, consequently all inflammatory conditions had passed away. There was no fluid. I could readily imagine if they were of recent standing the fluid might be present.

HEMOGLOBINURIA AFTER A SECOND TRANSFUSION WITH SAME DONOR.—In the case reported by William Thalhimer, Milwaukee (*Journal A. M. A.*, May 14, 1921), a boy was transfused with his father's blood. A direct test of these bloods, made both by macroscopic and by microscopic methods, detected no agglutinins. The transfusion was performed by the citrate method and was followed by only a mild

febrile reaction. Eighteen days later a similar transfusion was performed with the same donor, and after about 150 c.c. had been given, a most severe and unexpected reaction occurred. The transfusion was, of course, immediately stopped, and a few hours later the patient voided very dark, hemoglobinuric urine. This showed that hemolysis had occurred, and explained the reaction. The cause of this intravascular hemolysis was also subsequently discovered. Two tests were overlooked in preparing for these transfusions. Had these been performed, another donor would have been selected, and the agglutinative and hemolytic phenomena would not have taken place. Yet on superficial examination it would seem that all the necessary precautions had been taken. A direct test of the bloods gave absolutely no agglutinins or hemolysins. This was further demonstrated by absence of agglutination or hemolysis after the first transfusion. The success of this led to the omission of the tests before the second transfusion. It is known that in many instances repeated transfusions have been made with the same donor and recipient with no bad results. This case, together with some experimental transfusions in animals, demonstrates the necessity of performing tests before each transfusion, even though the same donor, who was previously satisfactory, is used. The two errors were: (1) performing only direct tests on the two bloods and not also determining the blood groups; (2) not repeating the direct tests before the second transfusion. Several weeks later the blood groups (Jansky nomenclature) showed the patient to belong to Group I, and the donor (the patient's father) to Group III.

NERVE INJURIES DUE TO ERRORS IN TECHNIC IN MAKING INTRAVENOUS ARSPHENAMIN INJECTIONS.—Accidents following the intravenous injection of arsphenamin are apparently uncommon, notwithstanding the frequency with which such injections are made. The nerve injuries discussed by Dean Lewis, Chicago (*Journal A. M. A.*, June 18, 1921), emphasize the necessity for extreme care in making these injections; for, if the solution is injected into a nerve or the sheath surrounding it, the nerve will be severely damaged. The subsequent sloughing of the soft tissues adjacent to it may render nerve repair difficult or unsatisfactory. One patient had a median nerve paralysis which had followed within a few hours after an attempted intravenous injection of arsphenamin. A nerve resection was performed. There seemed to be some improvement in sensation, but no evidence of return of motion. In the second case there was an ulnar and median lesion. Lewis says that pain radiating into the fingers when the first few drops of the solution are injected should be a warning that the needle is not in the vein and that the solution is being injected either directly into a nerve or into the tissue surrounding it.

PHENOMENON OF VERNES AS APPLIED TO THE SERO-DIAGNOSIS OF SYPHILIS.—Leon H. Cornwall and Louis S. Aronson, New York (*Journal A. M. A.*, Dec. 18, 1920), assert that a study of these syphilitic indexes constitutes a seromeasure of syphilis and indicates the efficacy of specific treatment. The specificity of the reaction is vouched for by Vernes after an extensive application to a large number of patients suffering from various diseases, which application has been controlled by the clinical observations of Marie, Landouzy, Chatelin and others. This new method is now under investigation in the neurologic department of Columbia University and in the pathologic department of the City Hospital. The results of these investigations will be published later.

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EDITORIALS

PENSIONS FOR THE BLIND

The question of state aid for the dependent blind will again come before the state legislature at its next session in January, 1923. The people of the state have at the polls voted to pension the needy blind, but the law is indefinite in some particulars and unjust in others. An effort has been made to get together the various organizations which are working for the interests of the blind. There are many points on which all agree, but there are others on which there is much divergence of opinion.

The ophthalmologists of the consulting staff of the Missouri Commission for the Blind have been asked to suggest possible changes in the law and doubtless there will be many conferences before there will be a unanimity of sentiment regarding what may be considered fair and just from the standpoints of the two most interested parties, i. e., the dependent blind and the taxpayer.

It is not a question of whether the needy blind should be pensioned—that has been settled—but the term “needy” must be defined more specifically, while the term “blind” is used so indefinitely that there is much room for debate as to when a man may be pronounced blind. Shall a person be considered blind who has a vision of 20-200, or shall the standard be 20-400, or even lower? Should a man who is blind from cataract, or some other remediable ailment, be allowed to draw a pension or must he submit to such necessary treatment or operation as offers a chance for improved vision before he is allowed to become a beneficiary under this act? Shall a man with only one eye and the vision in that eye so defective that he comes under the provisions of the law, be compelled to submit to operation or treatment even if there is a possibility of his losing what sight he may have?

There have been applicants for pensions who openly stated that they preferred having a pension to having an operation done for cataract. There are also cases apparently blind where competent refraction would give them sufficient vision to enable them to be, in at least some degree, seeing members of society.

In addition to this side of the question there is the other side, i. e., who shall pronounce a man blind? Shall it be for the competent ophthalmologists selected by the Commission for the Blind, or shall this responsibility rest on the medical profession at large? Compensation for the examination should be given to whomever does this work. This compensation should be sufficient to repay the examiner, in at least some measure, for his time and effort in making a thorough examination, especially in doubtful cases.

There is a still larger question than that of pensioning the blind, which is the immediate question under consideration, and that is the prevention of blindness. The statistics on blindness as revealed by Dr. Lamb's study of the applications for pensions reveal that 20 per cent. were caused by trachoma, a contagious but a curable and preventable disease. Is it a wiser policy to allow trachoma, or any other contagious and preventable disease, to spread through a community and cause blindness and then pay a pension to the blind, rather than to use every means at our command to treat the trachoma that already exists and prevent its spread?

Another important point revealed by these statistics on blindness is the large percentage—about 23 per cent.—of optic nerve atrophy in St. Louis and Kansas City, much the largest single cause of blindness in those two centers. Since we know that probably 75 per cent. of optic nerve atrophy is due to syphilis and therefore preventable it behooves us to consider the blight of venereal disease anew from this angle.

The solution of these problems is an important economic question and should stimulate the co-operation of our committees and members who are qualified to assist in arriving at a satisfactory conclusion.

THE IMPORTANCE OF AN EDUCATION

In an inspiring address before the recent convention of the Missouri Press Association in Kansas City, President Jones, of the Missouri University, made a strong appeal for the press to popularize higher education. Acknowledging the loyalty of the press of Missouri to, and its generous support of, one division of the University—the School of Journalism, everywhere acknowledged to be one of the best in the country—President Jones urged the members of the Press Association to interest themselves in the boys and girls in the grade and high schools by focusing their attention upon the advantages of a college education, both to the student and to the country.

He spoke of the influence of a club in a Missouri town which undertook to encourage the students to continue on through college. This club in its appeal to the grade and high school pupils mentioned the following facts concerning the influence of education upon the future outlook of the students:

Without a grade school education, 1 in 150,000 wins distinction.

With a grade school education, 4 in 150,000 win distinction.

With a high school education 87 in 150,000 win distinction.

With a college education, 800 in 150,000 win distinction.

The appeal of the club stated furthermore that only about 1 per cent. of American men had been college graduates, and yet this 1 per cent. has furnished a majority of the great thinkers in our country, the figures specifying the following percentages of high dignitaries in the national government drawn from this 1 per cent. of college graduates:

Presidents of the United States, 55 per cent.

Vice Presidents, 54 per cent.

Secretaries of State, 62 per cent.

Attorney-Generals, 67 per cent.

Justices of the Supreme Court, 69 per cent.

Chief Justices of the Supreme Court, 85 per cent.

These are startling facts; they should be posted in every grade and high school in the state as a daily reminder to the ambitious student that his future progress may be seriously impaired if he stops short of a college degree.

We still hear much talk about the uneducated person reaching the top. This does sometimes happen, but the person who thus rises to the pinnacle in his chosen field does so in spite of his deficiency. The best brains in the world untrained by a college course cannot function with the rhythm and precision of the trained mind.

These are some of the reasons why the medical profession insists upon an education for those who would treat the sick. The ignorance of the uneducated healer is pitiable, and makes him a menace to the health and lives of the people. The broad knowledge of the educated physician enables him to save numerous lives that would otherwise have perished.

The members of the next General Assembly should read the address of President Jones and ponder upon their duty to the people who sent them to the legislature when they are asked to vote for legalizing the treatment of the sick by persons mentally unqualified for such an undertaking.

NEW BUILDING FOR ST. LOUIS MEDICAL SOCIETY

A notable achievement has been accomplished by the St. Louis Medical Society when on October 10 at a regular meeting of the Society the building committee announced that the full amount of money needed to pay for the plot of ground purchased several months ago upon which to erect a new building had been collected, and tendered the money to the Society. In presenting its report the building committee related some of its activities, which are published on another page in this issue in connection with resolutions adopted by the Society in accepting the gift of money in payment of the ground.

The lot, as we have already announced, consists of a plot of ground 150 feet square on Lindell Boulevard just west of Moolah Temple, costing \$22,500. The building committee conceived the idea of soliciting \$500 from forty-five members of the Society as donations towards the Society's welfare, and very shortly after beginning this campaign they were gratified by the assurance that the amount would be quickly collected. Their anticipations were not disappointed, the roll of honor being rapidly filled until the total amount was collected. In accepting the donation at the meeting of the Society on October 10, the following resolutions, presented by Dr. Amand Ravold and seconded by Dr. A. H. Hamel, were unanimously adopted:

WHEREAS, At the regular meetings on April 21 and May 9, 1922, the St. Louis Medical Society by resolutions definitely decided to proceed to inaugurate a movement for a new fire-proof building solely for the purposes of the Society and its library, and provided for the creation of a special committee of seven members to be known as the Building Committee with authority to select, and upon approval by two-thirds vote of the Council, to purchase with the funds or upon credit of the Society a site within ten blocks of Grand Boulevard and Olive Street, and

WHEREAS, In pursuance of its duties under the authority above mentioned a site has been duly selected and purchased on Lindell Boulevard, west of Moolah Temple, and

WHEREAS, The Building Committee and the president have brought to the attention of some seventy-five members an informal proposal to present the Society with approximately \$22,500 for the purchase of the site selected, and for no other purpose, and

WHEREAS, Forty-five members have contributed \$500 each, a total of \$22,500, unconditionally for the purpose before mentioned, and

WHEREAS, This generous spirit was mani-

fested also by many others who endorsed the movement but could not find it convenient at this time to subscribe, but almost to a man verbally expressed a desire to assist in the construction of the building by subscribing a similar, and in some instances a greater amount, and at a later date, therefore be it

Resolved, That the St. Louis Medical Society accept, with proper expressions of appreciation by the president, the contribution of five hundred dollars from each of the forty-five contributing members, and be it further

Resolved, That in the event the Society shall at any time for any reason abandon the project for the new location and a new fire-proof building for the purposes of the St. Louis Medical Society and its library, the president and treasurer of the Society shall sell the site selected and purchased and remit to the forty-five donors the proceeds pro rata on or after two years from January 1, 1923, and be it further

Resolved, That a copy of these resolutions shall be printed in the *Bulletin*, spread upon the minutes of the Society with the names of the contributors and sent to each subscriber to the building site.

On another page will be found an illustration from the architect's drawing of the new building. A campaign for raising money to erect the building has already been inaugurated and the members anticipate collecting enough money to assure the completion of the building within the next two years at a cost of about \$200,000.

NEWS NOTES

OATHER A. KELLY, D.D.S., University Club Bldg., St. Louis, announces that he will limit his practice to the removal of teeth.

DR. CLARENCE MARTIN and Miss Genevieve East, both of St. Louis, were married September 23, 1922.

DR. JOHN R. CAULK, of St. Louis, has been elected president of the Southwestern Branch of the American Neurological Association.

IN the death of Dr. A. L. Korn, Joplin has lost one of her two pathologists. There is a good opening for anyone wishing to enter into that branch of medicine. Dr. Korn's practice and equipment are for sale.

DR. WILLARD BARTLETT, of St. Louis, was the guest of Adams County (Illinois) Medical Society at their meeting at Quincy, Ill., October 9, 1922. Dr. Bartlett presented a paper

on "The Newer Surgery of the Thyroid Gland."

CARPENTERS working on the construction of the United States Hospital at Jefferson Barracks went out on a strike recently because the sheet metal workers were given the job of putting metal strips on windows. The carpenters claim that the work should have been done by them.

JOPLIN will soon have another hospital, a \$50,000 residence having been given to the Methodist Church to be converted into a hospital. Plans are under way to build an annex and open the institution at an early date. Joplin at present has only one hospital, St. John's, a 100-bed institution.

DR. W. P. ELMER, St. Louis, for seventeen years connected with the teaching staff of the St. Louis University Medical School with the title of Professor of Medicine during the past several years, has accepted the appointment of Associate Professor of Medicine at Washington University School of Medicine.

DR. D. H. DOLLEY, formerly pathologist at the University of Missouri, has accepted the position of head of the Department of Pathology at St. Louis University School of Medicine, and Dr. E. H. Muir, of Harvard University Medical School, has been appointed instructor in pathology at the same school.

THE St. Louis Medical Society has purchased ground approximately 150 feet square on Lindell Boulevard adjoining Moolah Temple where the commercial exhibitors and registration bureau were located during the recent session of the American Medical Association. The ground cost \$22,500; this sum has been contributed by forty-five members, each paying \$500. It is estimated that the building including the cost of the ground when completed will cost \$208,000.

DR. E. J. GOODWIN was in Joplin one day during September looking over the ground for the annual meeting of the State Association in the spring. A number of the local physicians met with Dr. Goodwin at dinner and discussed probable arrangements for the meeting. All seemed to feel that more time should be given to entertainment at our state meetings, and with this thought foremost in mind the local Society has already set to work.

THE next examination of the State Board of Health of Missouri for applicants to prac-

tice medicine will be held in Kansas City at the Muehlebach Hotel, November 20, 21, 22, 23. On the last day a practical examination will be given at the General Hospital. All applications that are not complete and in the office of the secretary of the Board at least five days prior to the date of examination will be filed for the subsequent examination.

WORK has been started on the erection of the Shrine Crippled Children's Hospital at St. Louis. The hospital will consist of a three-story administration building, with two ward buildings, each two stories high, having room for eighty ward beds. The approximate cost of the building fully equipped will be \$425,000. It will be located near the group of hospitals connected with the Washington University Medical School and affiliated with that institution.

THE psychiatry clinic of the Juvenile Court, financed by the Commonwealth Fund, to investigate juvenile delinquents brought before the courts, has completed the experimental stage and is now ready to be transferred to the control of the city. The benefits of the clinic have been so pronounced that Director of Public Welfare Cunliff is anxious to have the city provide for the permanency of the clinic, and the plan has been endorsed by the St. Louis Medical Society.

THE Jackson County Medical Society has entered into an agreement with the owners of a proposed office building at Hunter and Baltimore Streets, by which the Society will be given auditorium and library space free of rental for ten years, the Society to endorse the building as a physicians' office building and approve the tenants. The property now owned by the Society is to be rented, the income to be used for the maintenance of the auditorium and the library.

AFTER a period of campaigning in October for \$300,000 to build an addition to the St. Louis Children's Hospital and pay indebtedness for money borrowed, the committee in charge of the solicitations reported subscriptions amounting to \$326,000. The result is very encouraging to the sponsors of the Children's Hospital, which is undoubtedly one of the best institutions of its kind in the country. The hospital is part of the group of hospitals connected with the Washington University Medical School. The service is free to afflicted children.

It is not too early for members who expect to attend the next annual session of the Ameri-

can Medical Association at San Francisco, June 25-29, 1923, to plan for the trip. There should be no difficulty in arranging for a sufficient number to make up a special train from St. Louis and Kansas City to San Francisco. It will be necessary to arrange for cars as soon as possible as the railroads are finding it difficult to furnish equipment on short notice. Fellows east and south of St. Louis should join this train and with Missouri physicians make the trip in our special. Communications may be addressed to the Secretary, 3529 Pine Street, St. Louis.

THE members of the St. Louis Medical Society will gather at the Elks' Club on the evening of Armistice Day for a get-together dinner. The principal object of the occasion is the celebration of the purchase of a plot of ground on which to erect a new fireproof building for the society and its library, and to discuss methods for raising \$200,000 for the construction of the new home. The ground cost \$22,500, and this sum was donated by forty-five members, each of whom contributed \$500. Dr. John A. Witherspoon, of Nashville, Tenn., a former president of the American Medical Association, will be the guest of honor and use his well-known oratorical and anecdotal talents for the success of the project.

WORK on the new hospital for the Medical Department of the State University has been started at Columbia. The hospital will be three stories high with a corridor of two stories connecting with the Parker Memorial Hospital one hundred feet distant. The building will cost about \$250,000 which was appropriated by the last General Assembly. When the building is completed the University will begin clinical instruction in medicine and extend the course from two to four years, thus providing Missouri students with a full medical course in medicine. This is the first of several buildings in the hospital group to be erected until the total of \$1,000,000 has been expended to provide hospitals for clinical instructions for medical students at the State University.

FOR what is said to be the first time in Colorado, a prescription for a sick patient was recently rushed through by government air mail service. On Saturday afternoon, August 12, a call came to the Denver depot of H. K. Mulford Company, for a product for which there is little demand, and of which the depot had none in stock. Upon learning of the exigencies of the case, an order was telegraphed to the home office of the H. K. Mulford Company, at Philadelphia, requesting

shipment by airplane. On Tuesday morning, August 15, at 8:30, the package was delivered to the customer, thus establishing what is doubtless a record for quick service for delivery from Philadelphia to Denver. Airplanes have already caused marked changes in the commerce of this country, and indications are that we have hardly begun to realize their possibilities.

MISS GERALDINE LERMIT, a well-known worker in occupational therapy, has been appointed Director of the Missouri Association of Occupational Therapy, with headquarters at St. Louis, succeeding Miss Idelle Kidder, who resigned. Miss Lermit, a graduate of Wellesley College with an A.B. degree and a Masters' degree from the University of Chicago, was among the first women to be appointed in reconstruction work in the United States Army. After her discharge from the army she was appointed chief aid in the United States Public Health Service and for about a year has been serving in that capacity at the Veterans' Hospital in St. Louis. The Missouri School of Occupational Therapy is one of the most important institutions of its kind in this country, being one of the first to be established, and its graduates are eagerly sought by institutions where occupational therapy has been introduced. Dr. M. B. Clifton is president of the school.

THE Department of Commerce will soon issue a bulletin, based on 1921 figures compiled by the Bureau of the Census, showing for each state and each city in the birth registration area the number of births and the infant mortality rate, together with figures for 1920 for comparison. These 1921 figures for a population of 70,425,705 show 1,714,261 births, 825,511 deaths at all ages, and 129,588 deaths under 1 year of age, which give a birth rate of 24.3 per 1,000 population, a record low death rate of 11.7 per 1,000 population, and a record low infant mortality rate of 76. In 1920 the rates for the birth registration area were: Birth rate 23.7 per 1,000 population; death rate 13.1 per 1,000 population, and infant mortality rate 86.

For the states the lowest 1921 infant mortality rate (51) appears for Oregon, and the highest (98) for Delaware; for cities of 100,000 population or more the lowest infant mortality rate (50) appears for Portland, Oregon, and the highest (114) for Fall River, Mass. Missouri is not in the birth registration area.

DR. G. P. ARD, Health Supervisor, announces that the Board of Control for the

Eleemosynary Institutions has appointed consulting staffs for State Hospital No. 1 and State Hospital No. 4 as follows:

State Hospital No. 1, Fulton: Surgeons, Drs. Dudley Robnett and Frank G. Nifong, Columbia; Gynecologist, Dr. E. Lee Dorsett, St. Louis; Internist, Dr. Wm. Engelbach, St. Louis; Neurologist, Dr. W. W. Graves, St. Louis; Eye, Ear, Nose and Throat, Dr. J. B. McCubbin, Fulton; Dermatologist, Dr. R. L. Sutton, Kansas City.

State Hospital No. 4, Farmington: Surgeon, Dr. L. E. Monroe, Bonne Terre; Gynecologist, Dr. Harry S. Crossen, St. Louis; Internist, Dr. Louis H. Behrens, St. Louis; Neurologist, Dr. M. A. Bliss, St. Louis; Genito-Urinary Diseases, Dr. C. E. Burford, St. Louis; Ophthalmologist, Dr. W. H. Luedde, St. Louis; Eye, Ear, Nose and Throat, Dr. W. E. Sauer, St. Louis; Dermatologist, Dr. Wm. H. Mook, St. Louis.

The consulting staffs for Hospitals Nos. 2 and 3 were announced some time ago.

ALL objectionable amendments to Proposal No. 192 in the Constitutional Convention have been defeated and the proposal with one amendment of an acceptable character has been read the first time. Each proposal must have three readings, its adoption or rejection occurring when it is read the third time. The amended proposal now reads:

PROPOSAL NO. 192

Sec. 58. The General Assembly shall provide by law for the safeguarding and promotion of the public health.

One member of the Convention suggested that the addition of the words "by law" would not lessen the force of the proposal but would prevent any department or official of the state government from interpreting the proposal as conferring authority upon them to establish rules of their own making concerning the promotion of the public health and definitely place all such power upon the General Assembly.

As amended, the proposal has won friends and its adoption when it reaches the third reading seems promising.

THE annual dinner of the Kansas City Obstetrical and Gynecological Society was given on Thursday evening, September 28, at the Hotel Lucerne, Kansas City. Dr. Roland E. Skeel, of Los Angeles, President of the American Association of Obstetricians and Gynecologists, was the guest of honor, and in addition to the fellows of the society there were present, Dr. Caryle Potter and Dr. John I. Byrne, of St. Joseph, Dr. Lynn B. Schofield and Dr.

O. B. Hall, of Warrensburg, and Dr. Leslie Leverich and Dr. A. E. Reeves of Kansas City, Kans.

Dr. Skeel delivered an address on "Premature Publication of Methods of Surgical Operations." This address was most interesting and valuable, being a resume of the papers presented at the Albany meeting of the American Association of Obstetricians and Gynecologists. Particularly important was Dr. G. Van Amber Brown's post mortem results in 70 still-born and early death of new-born fetuses showing in 45 of the specimens developmental defects in the urinary tract; and Dr. Babcock's plastic operation on the cervix in antiversion as a cure for sterility. Dr. George C. Mosher is president of the Kansas City Society.

THE 24th Annual Conference of the American Hospital Association was held in Atlantic City, September 25-30, 1922. President Geo. D. O'Hanlon, superintendent of Bellevue and Allied Hospitals, called the meeting to order Monday afternoon in the theater on Young's Million-Dollar Pier.

This was the largest and most enthusiastic meeting ever held by the hospital executives of the United States and Canada. Almost every phase of hospital activity was touched upon in the program and the subject that is foremost in hospital thought today, namely, hospital standardization with all its different ramifications, was thoroughly discussed. Hospitals in all parts of the United States and Canada are making efforts to meet the new requirements; those who formerly have met only the minimum requirements are endeavoring now to go further.

The Association has completely outgrown the ordinary meeting places and the problem of finding suitable quarters that will provide for the three thousand delegates, members and exhibitors is becoming more and more difficult to solve. The growth of the Association has been remarkable when it is considered that only fifteen years ago it was organized in Boston with just thirty members.

The date of the next meeting will be announced later.

CITY officials of St. Louis are preparing to submit a bond issue for the approval of the people amounting to \$76,000,000 for public improvements. Included in the improvements is an item of \$5,000,000 for hospital facilities. At a hearing held recently Mr. Nelson Cunliff, Director of Public Welfare, declared that "300 patients are sleeping on the floors of the City Sanitarium" (the hospital for the insane), that the City Hospital is overcrowded, and the Koch Hospital for the tu-

berculous, built to house 100 patients, is now caring for 1,000 persons.

The separate expenditures that the \$5,000,000 is intended to cover follow: Addition and extension to Koch Hospital, \$1,000,000; addition to City Sanitarium, \$1,000,000; continued development of the Training School for the Feeble-Minded, \$500,000; for smallpox isolation building, \$250,000; for additions to City Hospital, \$1,000,000; for a new Morgue, \$132,000; Manual Training School for Bellefontaine Farm, \$50,000; for building at Girls' Farm, \$100,000; for Negro Hospital, \$750,000.

Dr. W. W. Graves, president of the St. Louis Medical Society, and other members of that body assured the committee that the proposition would have the unanimous support of the St. Louis Medical Society.

THE third annual meeting of the Medical Association of the 89th Division was held at Kansas City, October 4, 5 and 6, 1922, in the Baltimore Hotel. The meeting was called to order by the president, Dr. Edgar C. Duncan, Fredonia, Kan., and the following officers were present: Drs. M. L. Ballot, Clyde, Kan., vice president; E. W. Caveness, Kansas City, Mo., secretary-treasurer. This meeting was held in conjunction with the annual clinics of Kansas City hospitals and no separate medical program was held this year.

The annual banquet which was held in the Doric Room of the Baltimore Hotel, October 4, was well attended and several excellent papers were read and discussed.

The next annual meeting of the Association will be held at Kansas City, Mo., at the same time the 89th Division reunion is held at Kansas City, Kan. At this meeting a special program with clinics and the annual banquet will be given.

The following officers were elected for 1923: Drs. George Porter, Centerville, Kan., president; R. M. Thurlow, Kansas City, Mo., secretary-treasurer; David A. Morgan, Nilewood, Ill., vice president east of the Mississippi River; Jos. Getelson, Kansas City, Mo., vice president west of the Mississippi River, and H. E. Reese, Buffalo, Kan., and W. L. Mondell, Hutchinson, Kan., vice presidents-at-large.

OBITUARY

JOHN MORGAN LOWERY, M.D.

Dr. John M. Lowery, of Poplar Bluff, a graduate of the Barnes Medical College, St. Louis, 1903, died at the Missouri Baptist Hospital, St. Louis, following an operation for

appendicitis, September 5, 1922, aged fifty years. After graduation he began to practice his profession at Salem, but removed from there about thirteen years ago and established his office at Poplar Bluff where he made many friends who, with his wife and one son, mourn his loss. He was a member of the Butler-Stoddard County Medical Society, and by his death the profession loses a valued member.

WILLIAM T. LINDLEY, M.D.

Dr. Wm. T. Lindley, of Hamilton, Mo., a graduate of the Missouri Medical College (now Washington University Medical School), 1881, died September 5, 1922, aged sixty-three years.

Dr. Lindley was at one time president of the Grand River Medical Society and a member of Caldwell County Medical Society for fourteen years during which time, in appreciation of his good work, he was elected president of the Society. He was also a Fellow of the American Medical Association. Dr. Lindley was a man of high ethical ideas and by his death the medical profession is deprived of the helpful influence of his guiding hand.

HENRY HICKMAN, M.D.

Dr. Henry Hickman, of St. Louis, a graduate of Pope's Medical College, 1869, died September 28, 1922, aged 83 years.

Dr. Hickman was born in Bristol, England, in 1839. Coming to this country in 1864 he immediately enlisted in the Second Missouri Cavalry and received injuries in action which brought him honorable dismissal before the close of the Civil War. After his graduation from medical college he was made Assistant Head of the Marine Hospital but, after several years, gave up this position to enter private practice and continued in practice until his retirement about fifteen years ago. He had lived in St. Louis for fifty-eight years. He was an Honor member of the St. Louis Medical Society and had been a member of the St. Louis Board of Education, serving as president of that body for several terms.

T. C. GOURLEY, M.D.

Dr. T. C. Gourley, of Phillipsburg, a graduate of the Missouri Medical College, St. Louis, 1883, died at his home October 12, 1922, aged sixty-seven years.

Dr. Gourley was born in 1855 and after graduating from the medical college at Phillipsburg where he continued in active practice until a few months prior to his death. He was a careful, conscientious practitioner, respected in his community where he had

spent all his professional life, going hither and yon, ministering to the afflicted with a willing hand; he was a very unassuming man, but alert to the needs of his patrons and respected by the physicians of the county. He will be missed by those in his own community as well as by the physicians in the county. He was a member of Laclede County Medical Society.

JOHN S. ENLOE, M.D.

Dr. John S. Enloe, of Bay, a graduate of the Hospital College of Medicine, Louisville, 1888, died at St. John's Hospital, St. Louis, October 6, 1922, aged sixty-two years.

Dr. Enloe was born in Moniteau County. He had practiced at St. Thomas and also at Jefferson City before taking up his residence at Bay. He was a member of a family of doctors and had a large acquaintance throughout the state.

He was a member of Gasconade-Maries-Osage County Medical Society, a man of high ethical ideas, and his loss will be deeply felt by the members of the medical profession.

WILLIAM JACKSON CLARK, M.D.

The sudden passing of Dr. Wm. J. Clark was a shock almost beyond realization to the entire community. He had not been in the best of health for some time, but as he had not complained about it the public knew very little about his sickness. He was a man of few words and rarely spoke to anyone of his physical condition.

William Jackson Clark was born at Muncie, Indiana, January 18, 1873, and died at Maysville, Mo., October 8, 1922, being at the time of his death forty-nine years old. He graduated from the high school at Columbus, O., at the age of seventeen and attended Starling Medical School at Columbus for three years, after which he entered Marion-Sims Medical School in St. Louis (now the medical school of St. Louis University), and was graduated from this school in 1902. He served two years as intern in the St. Louis City Hospital and began his professional practice at Osborn, Mo. He remained here one year and then moved to Maysville, Mo., where he built up a large practice.

Dr. Clark was a hard worker and the roads never were too bad and nights never so dark or bad from storms but that Dr. Clark would always go and serve his patrons. He was a man of large possibilities. When the World War was going on Dr. Clark offered his services to his country and was commissioned at Fort Riley although he advanced no farther before the armistice was signed. The

death of this noble man was tragic, but he had said at different times that when the end came he wanted it to be when he was at his post of duty, and such was the case.

Dr. Clark was a member of DeKalb County Medical Society, the State Association and a Fellow of the American Medical Association, and we shall greatly miss him as a co-worker in the county society and county profession.

W. S. GALE, M.D.

CORRESPONDENCE

DR. GIB. W. CARSON NOT PRACTICING
ABRAMS ELECTRONIC TREAT-
MENT

St. Louis, Oct. 20, 1922.

To the Editor:

Will you please mention in *THE JOURNAL* that Dr. Gib. W. Carson, 4104 West Pine Blvd. and 835 Century Bldg., is not the Dr. G. W. Carson, St. Louis, who is being advertised in the magazines and public press as practicing the Abrams electronic treatment.

Thanking you in advance, I am,

Yours truly,

GIB W. CARSON, M.D.

MISCELLANY

REPORT OF THE BUILDING COMMITTEE, ST. LOUIS MEDICAL SOCIETY

The Building Committee begs leave to report as follows:

We herewith submit the sketches as prepared by the architect, Mr. Albert B. Groves, in collaboration with the committee. They represent in the opinion of the committee, the minimum requirements of the Society and its library for the present, and for some time in the future, with due regard to the history and record of the local profession, its dignity and its standing in the community. It is an ambitious realization of our needs, but not one beyond the potentialities of the St. Louis Medical Society.

The project involves an expenditure of \$208,000, including lot \$22,125, title \$100, survey \$100, estimated legal fees \$175, building roughly estimated \$175,000, and architects' fees at 6 per cent. of the building cost, \$10,500. It may cost a little more or less but at present estimates the sum named, \$208,000, will suffice. The present property is valued at not more than \$20,000. Its sale at that figure would reduce the sum necessary to be raised to \$188,000. We will need our present property until our new building is completed and it might be well to reserve the sale price of the present quarters to cover any shortage, now unforeseen, and the furnishing of the new quarters. In this event we should count on an average contribution of \$200 from our membership.

The Bartscher Fund, \$42,500, is not available for expenditure in purchasing the site, constructing the building, nor can it be used as collateral in borrowing money. This statement is confirmed by the legal opinion of Mr. Benjamin W. Charles, copy of which is herewith attached. The library should not be considered as a practical business asset. So our available assets are only the present property and our income from dues, plus minor sums for use of our building by other organizations. The present income of the Society should not be burdened unduly with interest costs and the like, but should be kept intact for our current and overhead expenses. These will probably increase when we occupy the new building, which will require about one year in construction.

The committee, therefore, recommends:

1. Acceptance of the sketches on which are to be based the detailed plans and specifications.

2. That we immediately proceed to raise funds by voluntary contribution from each member of the Society to the limit of his ability and willingness to assist, payable in cash or negotiable notes for such mutually convenient periods as may be arranged between the contributing member and the committee.

3. That it be the policy of the Society to proceed with the erection of the building just as soon as the donations for this purpose will permit.

4. That the committee be authorized to proceed with the erection of the building by the letting of contracts, etc., only when the cash payments and negotiable notes amount to 10 per cent. more than the estimates that may be finally arrived at.

Respectfully submitted,

LOUIS H. BEHRENS,
FRANK M. FLOYD,
WALTER H. FUCHS, Secretary.
JOSEPH GRINDON.
AMAND RAVOLD,
F. C. SIMON,
J. C. MORFIT, Chairman,

Unanimously adopted September 11, 1922, at special meeting of the Building Committee.

Approved by the Council in special meeting September 13, 1922.

The following resolutions relating to the report of the Building Committee, enabling the committee to proceed with financing, constructing and equipping our new home were introduced by Dr. J. Henry Amerland, seconded by Dr. R. E. Schlueter and Dr. A. H. Hamel, and were unanimously adopted by the Society, Tuesday evening, October 10, 1922:

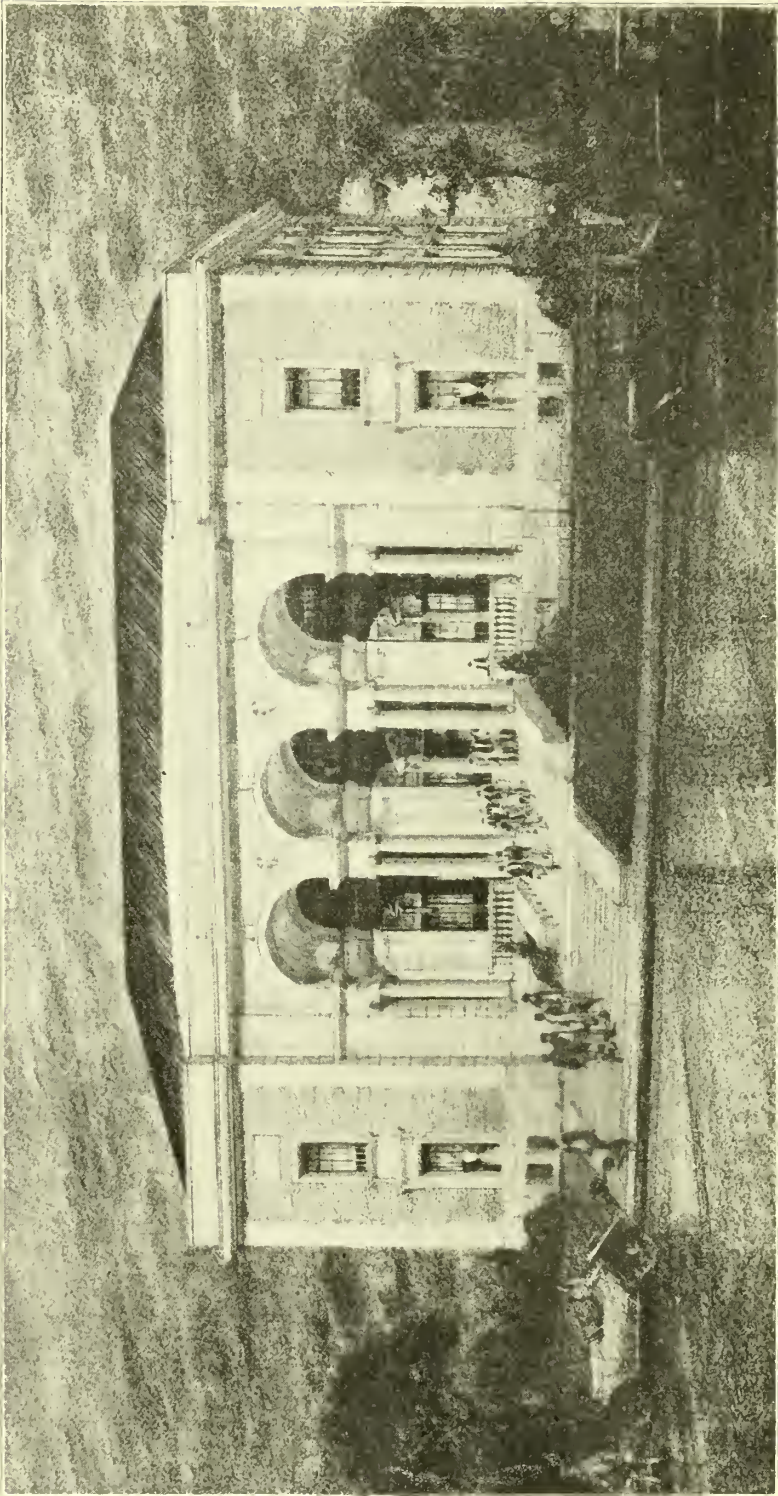
WHEREAS, The St. Louis Medical Society at the regular meetings of April 21 and May 9, 1922, committed itself to the purpose of providing new quarters solely for its needs and those of its library, and

WHEREAS, Forty-five members, through the solicitation of the members of the Society's duly authorized Building Committee, have each generously contributed \$500.00, a total amount of \$22,500.00, thus enabling the Society to pay cash for its Lindell Boulevard site on October 16, 1922, and

WHEREAS, The Society's duly authorized Building Committee presented a formal report with recommendations concerning its activities together with recommendations for further activities to the regular meeting of the Society September 19, 1922, and

WHEREAS, This report with recommendations were published in three succeeding issues of the *Bulletin* and again read before the Society on this date, now therefore be it

Resolved, That the report and recommendations of the Building Committee be adopted.



Proposed St. Louis Medical Society Building
Albert B. Groves, Architect

Second: That the Building Committee be continued in its activities.

Third: That the president, with the approval of the Council, be and hereby is empowered to enlarge the Building Committee as circumstances may warrant.

Fourth: That the Building Committee be and hereby is authorized to proceed to raise funds by soliciting contributions for the specific purpose of constructing and equipping the Society's new quarters.

Fifth: That a Building Fund shall be established for receiving and disbursing funds in connection with constructing and equipping the new quarters.

Sixth: That the proceeds from the sale of the present quarters shall go into the Building Fund.

Seventh: That payments out of the Building Fund shall be made as other payments from the treasury are made, and

Eighth: That the Treasurer shall be the custodian of the Building Fund and shall be adequately bonded for this Fund.—*Bulletin St. Louis Medical Society.*

ONE WAY OF GETTING A DIPLOMA

The Interesting Case of Charles Wade Page

Charles Wade Page is at present practicing in Tampa, Florida, on the basis of a license issued by the Eclectic Board of Medical Examiners of Florida in December, 1919. The state law of Florida at the time Page's license was issued, required as a prerequisite to licensing, the possession of a diploma or a certificate of graduation from a medical college. So far as our records show, Page possesses no such diploma or certificate and has never been graduated by any medical college.

In August, 1919, the Biographical Department of the American Medical Association sent Page a personal information blank requesting him to give data regarding his graduation, licensure, etc. This was done because Page in submitting an advertisement for insertion in *The Journal* had signed himself "Dr." while the records failed to show any man of this name legally entitled to call himself a physician. In reply to this request for information, Page wrote in part:

"I cannot fill out your card because I have a year to do before I graduate. I have a temporary license to practice medicine in Florida for 1919. This license was given me by the board so I could earn enough money to complete my education."

This, it should be borne in mind, was in August, 1919, when he had "a year to do" before he would be graduated; yet a license was issued in December, 1919. Either Page's statement that he was practicing on a temporary license was a falsehood or the law had been violated, as Florida makes no provision for the issuance of temporary licenses to any but graduates.

In 1920, when Page was practicing in Palatka, Fla., *The Journal* was informed that Page had been traveling for an optical house spending a day or two at various places fitting glasses. Prior to that he was said to have been connected in some capacity with an insurance concern.

In February, 1921, Page sent in a classified advertisement for insertion in *The Journal*. At this time he was living in Tampa. The advertisement read (spelling and composition as in the original) thus:

"For sale complete office equipment, eye, ear, nose and throat \$10,000 a year. Will except auto or real estate in Florida or Arkansas as part."

Page was notified that, as the records failed to

show that he was a graduate physician and as particulars regarding the announcement that he wanted published were not given, the advertisement was not acceptable.

Page Would Enter the Diploma Business

In August, 1922, Dr. E. J. Goodwin, Secretary-Editor of the Missouri State Medical Association, wrote to *The Journal*, stating that C. Wade Page had written to a high-grade business concern in St. Louis asking it to print for him (Page), on parchment, six diplomas of the American Medical College of St. Louis, including the names of the professors, and with the order, when done, to insert six different names of supposed graduates. The American Medical College, it should be stated, was an eclectic institution that ran for many years; it dropped eclecticism in 1910. It went out of existence under that name in 1912, when it became the Medical Department of the National University of Arts and Sciences, which in turn became extinct in 1918.

The letter Page had written bore a letterhead reading: "C. Wade Page, M.D., Eye, Ear, Nose and Throat, Tampa, Florida," and ran thus: "The Gast Litho Co., St. Louis, Mo."

Gentlemen: I am authorized by the former officers of the American Medical College, St. Louis, Mo. to ask you if you did thire Diploma engraving for them and if so if you still have this Plate and can you duplicate 6 copies of the engraving upon genuine Parchment for us and the cost of the same in case you do not have this engraving do you know the lithographer that has Could you Reproduce this from a specimen Diploma of the College & cost of same I await your reply.

C. Wade Page, Secty."

It is worthy of note that Page signs himself "Secty." The Gast Bank Note Company took the matter up with some St. Louis physicians who immediately brought the case to the attention of Dr. Goodwin. In the meantime, the company wrote a noncommittal letter to Page stating that it could not advise him on the matter until a copy of what was desired had been submitted and suggesting that Page send a sample of the diplomas he wanted. A few days later there came from Page a diploma of the American Medical College signed by the college secretary, president and vice president and by all the various professors and dated March 25, 1902. The diploma (which, together with all the correspondence, was sent to *The Journal* office and photographed) showed evidence of an attempt to erase the name of the person for whom it was originally issued, and, the attempt failing, that part of the parchment containing the name had been crudely cut out.

Page Becomes "Secretary"

Accompanying this diploma was a letter from Page in which he signed himself "Secretary of the American Medical College." In it he stated "We desire 4 coppys so give me prices on 4 and 6." The Gast Bank Note Company immediately wrote Page that it had received the sample copy but that it did not have the plate from which the diploma was made and that the cost of making a new engraving would be approximately \$75 with \$25 additional for making the diploma. To this Page replied—still signing himself "Secty."—that he wanted six diplomas like sample and insisted that they "must be just like it with the names of all the Professors as some are now Dead and we cannot get an exact Duplicate unless you follow Instructions." Page stated further that he would furnish the company

with the names that "we wish to Appear on these Diplomas" and enclosed a check for \$25 part payment in advance.

In the meantime, Dr. Goodwin had written to Dr. J. J. Link of St. Louis apprising him of Page's action. Dr. Link was for some years treasurer and, for a period, both president and treasurer of the American Medical College. In reply, Dr. Link said that Page was not known to the Board of Trustees of the American Medical College and had no authority to have diplomas of the American Medical College engraved or printed. He pointed out that a duplicate diploma was rarely issued by that school and then only by a vote of the Board of Trustees on receipt of an affidavit from an applicant who was known to be a graduate of the school, to the effect that his diploma had been destroyed. In such cases the duplicate diploma was imprinted with the word "Duplicate."

The Forged Telegram

In answer to Page's letter accompanying the check the Gast Bank Note Company wrote that they would have to have authority from the president of the college before proceeding with the work. To this Page replied:

"Gentlemen: I sent your letter of Sept. 1st to Dr. Younkin Dean at Orlando, Fla. he is confined there with Dengue fever asking him to Instruct you just what he wanted to appear upon these Diplomas. Kindly communicate with me upon advise from him."

The facts are Dr. Edwin Younkin, of the old American Medical College, was not at Orlando, Fla., but was in Chicago! Nevertheless, a Western Union "night letter" came to the Gast Bank Note Company from Orlando, Fla., signed "Edwin Younkin, M. D., Dean." It read:

"Give authority to make six diplomas as specimen per Dr. Page. No facsimile wanted. Proceed with work. Write Dr. Page, the secty."

The company again wrote Page stating that it had received a telegram purporting to be signed by "Edwin Younkin, M.D., Dean" but that it could not proceed on such an order but would need a written signed order. Page immediately replied that he had written a letter giving the company his (Page's) authority to make six diplomas and had sent the same to Dr. Younkin to be countersigned. In due time a letter came to the Gast Bank Note Company with the double signatures: "C. Wade Page, Secty., Edwin Younkin, M.D., Dean." We reproduce this letter in facsimile and it will be noted that below the letter, as sent to the Gast Bank Note Company, is a statement actually signed by Dr. Edwin Younkin, certifying that he never signed this letter. This statement was written by Dr. Younkin when a representative of *The Journal* laid the facts and the exhibits in the case before him.

Here the case rests so far as *The Journal* is concerned. What are the authorities in Florida going to do about it?—*Journal American Medical Association*.

MEDICAL PROGRESS IN CHINA

The annual report of the China Medical Board of the Rockefeller Foundation which has just been published, together with the recent announcement from Peking that the Board has given \$125,000 each to Southeastern University at Nanking and Nankai College at Tientsin for science buildings and equipment, calls attention to the significant fact that the Chinese themselves are beginning to assume responsible leadership in the teaching of modern science and its application to medical education and programs of public health. Southeastern University

is a government institution, located at Nanking, the old southern capital of China. Nankai College, in the north, is a private institution receiving provincial aid. Both furnish excellent examples of what the Chinese themselves are now doing in modern education, financed with Chinese money and with the teaching and management entirely in Chinese hands.

"Looking back over the past ten years," says Mr. Roger S. Greene, in his report as Director of the China Medical Board, "it is clear that medicine in China has made real progress. The increased effectiveness of medical schools and hospitals, the development of an active Chinese medical association under enlightened leadership, and the growing interest of the Chinese people in Western medicine and public health, are sources of satisfaction to those who hope to see the Chinese people in possession of a scientific, well-rounded and complete system of medicine."

Striking evidence that the pioneer work of foreign schools and colleges in China is bearing fruit is also found in the organization in 1921 of a purely Chinese national health association.

"While it has been necessary," the report states, "to provide one fully equipped and highly organized medical school to aid in setting standards for medical education in China, and to give opportunity for the training of teachers and investigators, it is realized that the general progress of medicine must depend largely on institutions under other auspices throughout the country, and that in all probability many of the future leaders of the Chinese medical profession will be men who have secured their undergraduate training entirely in such schools. The Board has therefore been greatly interested in the development of medical schools other than that for which it has assumed complete responsibility, and has given some financial aid to those which seemed to offer the most promise of sound growth."

Aid was continued during 1921 toward the current expenses of three medical schools wholly or partly under mission control—Hunan-Yale College of Medicine, Shantung Christian University School of Medicine, and the Pennsylvania Medical School of St. John's University of Shanghai.

ACTION OF MERCUROCHROME-220 ON GONOCOCCUS.—The experiments made by Ernest O. Swartz, Cincinnati, and David M. Davis, Baltimore (*Journal A. M. A.*, March 26, 1921), demonstrate that mercurochrome-220 has a powerful germicidal action against the gonococcus. In clinical trials, while it has proved to be a useful agent in the treatment of gonorrhea, it is not a panacea for all gonococcal infections. There is, however, a rather rapid decline in the germicidal power of mercurochrome-220 when its solutions are allowed to stand. Owing to the apparent stability of the solutions, many have made them up in large quantities, to be used as occasion offered. This may explain many of the conflicting clinical results and failures to obtain the expected effects. Solutions of mercurochrome-220 should undoubtedly be made freshly for clinical use.

TUBERCULOUS MENINGITIS.—The point emphasized by George Franklin Libby, Denver (*Journal A. M. A.*, Dec. 18, 1920), is that severe headache of sudden onset and persistent character in an adult patient with a history of tuberculosis, either active or quiescent, should awaken a suspicion of tuberculous meningitis. And especially if taken in connection with disturbances of the motility of the eye, upper lid or pupil, or impairment of vision, this type of headache should strongly suggest tuberculous meningitis.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
Montgomery County Medical Society, Dec. 15, 1921.
Chariton County Medical Society, Dec. 23, 1921.
Webster County Medical Society, Dec. 27, 1921.
Clark County Medical Society, Jan. 13, 1922.
Reynolds County Medical Society, Jan. 17, 1922.
Camden County Medical Society, Feb. 8, 1922.
Schuyler County Medical Society, Feb. 10, 1922.
Perry County Medical Society, Feb. 13, 1922.
Vernon County Medical Society, March 24, 1922.
Pulaski County Medical Society, March 31, 1922.
Atchison County Medical Society, March 31, 1922.
Laclede County Medical Society, April 1, 1922.
Christian County Medical Society, May 9, 1922.
Oregon County Medical Society, May 29, 1922.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninetieth Meeting, October 9, 1922

1. OVOGENESIS DURING SEXUAL MATURITY.—By DR. EDGAR ALLEN.

The present conception of the mammalian ovary is that it is complete at birth or shortly after as regards the number of ova it contains. In the human being no new ova are supposed to be added after the age of two years. This conception requires that ova be stored for long periods of time, some maturing at puberty, others not until just before the menopause. Yet these ova lie in the ovary under apparently similar environmental conditions.

The evidence presented in this paper directly contradicts this accepted opinion. It is derived from thirty adult mouse ovaries collected at various periods of the sexual cycle.

Four main points of evidence were presented leading to the following conclusions:

The genesis of new ova from the germinal epithelium of the ovary continues during sexual maturity. It is cyclical, being correlated with the period of oestrus or "heat," and being absent during the dioestrous interval. It is therefore correlated and, the writer concludes, caused by the hyperemic condition of the ovary at the time of maturation of a set of ova from an earlier generation. From 400 to 500 new ova may form during each normal sexual cycle. An average of only nine reach maturity. Consequently the survival is approximately 2 per cent. This requires that degeneration of young ova form a more important part of ovarian physiology than usually supposed and also offers an opportunity for the operation of selection in the production of the definitive ova. The confirmation in other mammals that ovogenesis continues during sexual maturity will establish the germinal nature of the covering epithelium of the adult ovary, making ovogenesis more nearly analogous to spermatogenesis. This principle has at least two clinical applications:

(1) That the single layered covering epithelium of the mature ovary (and not the deeper tissues) contains the stock of potential germ cells on which fertility depends will explain more readily how a local surface infection may cause sterility; and

(2) In some cases of sterility a heavy connective tissue capsule may be found enclosing the ovary. It is considered that this inhibits the rupture of follicles. In some cases it is removed in an attempt to remove the cause of sterility. It is evident that the germinal epithelium with its supply of potential ova must also be removed. Therefore this operation, instead of curing, may be one effectual way of producing sterility.

DISCUSSION

Dr. R. J. Terry: As you are all aware, Dr. Allen's paper deals with a fundamental question and it is with great interest that we in the anatomical laboratory have followed the progress of his research.

The paper presents very convincing evidence in support of the thesis that the germinal epithelium continues to supply ova after puberty and it would seem that the actual migration of ova from surface to deeper levels might be susceptible of demonstration by some simple method such as vital staining perhaps. I know that Dr. Allen has considered this and I think it would be of interest to hear from him on this part of the investigation.

Dr. Allen: Replying to Dr. Terry's question, I wish to say that there are several papers reporting work along this line. It was thought that in the present work it would be possible to complete the proof by staining the germinal epithelium and showing that a particular cell had actually migrated by finding the stained cell in the interior of the ovary, but so far this has not been successful.

2. OBSERVATIONS ON THE KAHN PRECIPITATION REACTION.—By JANET A. HOLMES.

The precipitation test for syphilis proposed by Dr. Kahn, of the Michigan Department of Health, is a simple reaction obtained by a mixture in given proportions of patient's serum and an antigen. Should this test prove equal in sensitiveness to the Wassermann, its superiority to the latter reaction becomes obvious. The following is a report on 131 cases seen in the Washington University School of Medicine, according to the technique outlined by Kahn.

Two rows of tubes were set up in a rack, the first row containing .3 c.c. of inactivated patient's serum and .05 c.c. cholesterin antigen. The second row containing .3 c.c. patient's serum and .05 alcoholic antigen. Controls were used. The rack was shaken for three minutes and incubated overnight at 37 degrees. In the morning positive sera showed marked clumping; negative sera remained clear. The scale of reading can be made parallel to the familiar four, three, two and one plus of the Wassermann. The following table gives the comparative results of 131 cases with the regular Wassermann and the same 131 cases with the Kahn test.

Wassermann positive	} 30
Kahn positive	
Wassermann negative	} 94
Kahn negative	
Wassermann negative	} 7
Kahn positive	
Wassermann positive	} 0
Kahn negative	

It will be noticed there is a disparity in seven cases. In these cases the clinical evidence supports the Kahn test as against the Wassermann.

The number of tests run is too small as a basis for conclusions, but results obtained to date are sufficiently significant to warrant further investigation.

DISCUSSION

Dr. R. A. Kinsella: This is a matter of great interest to every clinician. We have all seen various tests as accompanying the Wassermann, but so far none of them have justified continued use. It is surprising how this simple Kahn precipitin test agrees with the Wassermann, and where it differs it seems to do so for good reasons as, for example, where there is a slight Kahn test with the Wassermann test negative, the clinical history has been in favor of a positive result.

It is hard to conceive how much difference this test would make in ordinary medical practice because it would mean that nearly every physician could do this simple test in his own office, with very little equipment and very little trouble, and little necessity for technical knowledge or the keeping of animals. Accordingly, every patient that came to the average practitioner would have a test for syphilis that would be as accurate as the Wassermann now is. That is the principal reason why Miss Holmes made a report on a small number of cases: To emphasize the nearness with which the Kahn precipitin test approaches to the Wassermann technique in diagnostic usefulness.

3. A PRELIMINARY REPORT ON THE CLINICAL USE OF GERMANIUM DIOXIDE IN THE TREATMENT OF ANEMIC CONDITIONS.—By DR. LEE D. CADY.

The use of germanium dioxide as an erythropoietic stimulus is very limited. The first article concerning its application appeared in February, 1922, in the *Journal of Experimental Medicine* by Hammet, Nowrey and Muller, who used it in experiments on rats. It has been tried with rabbits, dogs, guinea pigs and man. Only one clinical report has been made, namely, that by Kast, Croll and Schmitz in the August number of the *Journal of Laboratory and Clinical Medicine* where its use in sixteen unselected cases of anemia is reported.

According to reported unselected data the lethal dose for rats is 586 mg. per kilo of body weight, whereas it is 8 mg. for arsenic; 40 mg. may be injected without harmful local or general effects. It has no effect upon the leucopoietic tissues. It does not accumulate but is excreted by way of the kidneys and the alimentary tract. It does not stimulate the liver or the spleen to hematopoietic function. The gross changes that do occur in these organs are due to a relative engorgement of the capillaries with red blood cells. The stimulation occurs in the red bone marrow. The increase in the red blood cells is absolute and tends to occur in periodic variation even after the administration of the compound has ceased. It has no effect upon the blood coagulation, the Wassermann reaction, the blood chemistry, or the function of the kidneys.

From the sixteen cases previously reported and the four cases in our own experience, no conclusion may be made as to the efficacy. Case and others found it to be of use in secondary anemia where the condition was not too severe and of too long standing. In their two cases of pernicious anemia there was no effect, but in our one case there occurred either a remission or a marked benefit with its use combined with rest in bed and a raw beef diet. Our case of splenic anemia showed an increase of 1,200,000 red blood corpuscles in about three weeks with no change in the size of the spleen. It is doubtful whether or not there was any effect whatever in a case of myelogenous leukemia. In a severe case of secondary anemia associated with focal spinal cord lesion and splenomegaly there was

definitely no beneficial effect. In no case has its use in dosages of 0.1 to 0.2 gm. per day up to two or three grams had a harmful effect. It has the disadvantage of being expensive, \$7.50 to \$175 per gram, depending upon its source.

DISCUSSION

Dr. Olch: In the two cases of which Dr. Cady spoke, as being treated in the hospital, is the blood count going up?

Dr. Cady: Yes, it is still going up.

Dr. Olch: At Wistar Institute it was found, in using the germanium dioxide treatment, that there was hyperplasia of bone marrow and evidence of blood formation, and so the work was continued, in a clinical way. Last winter at the hospital in Baltimore there were a few cases of pernicious anemia treated with germanium dioxide, according to the direction given by two authorities. The results were not worth while. What struck me was that the therapy given in most of the cases of pernicious anemia caused only remissions.

Dr. Kinsella: It is interesting to note the relationship between the treatment with germanium dioxide and arsenic. It perhaps throws some light on the reason why arsenic enjoys a position of preeminence, or rather, the relationship of germanium dioxide to arsenic may give the latter its present standing.

I think it would also be interesting to ask Dr. Cady to tell us what this drug looks like; how it is administered; how long it takes to give a treatment, etc.

Dr. Cady: Germanium dioxide is produced by the New Jersey Zinc Company. It is a white powder. It is soluble, slightly more than .4 per cent. boiled and sterilized without any decomposition. It has been used in solutions because I find it is more convenient in getting equally divided portions. It is given by mouth, and can be disguised in syrups, etc. One or two patients have thought that they were somewhat nauseated, but in .2 gr. doses it was not definitely proven that it did cause nausea.

PROCEEDINGS OF ST. LOUIS NEUROLOGICAL SOCIETY

Meeting at St. Louis City Hospital, Sept. 25, 1922

Dr. Ernest Sachs, President

Dr. L. B. Alford, Secretary

REPORTS OF CASES.

1. THE VOCATIONAL REHABILITATION OF MEN WITH NEUROPSYCHIATRIC DISABILITIES. — By DR. F. M. BARNES.

As psychiatrists we have for indefinite years in the past been interested in the study of work, of occupation, as a curative agent in the treatment of neuropsychotic patients. Our hospitals have always used this agent in some degree, but never has there been a real opportunity to try out the problem on a large scale on patients outside of the hospital, as well as on those whose disability continues of such degree that continued hospitalization is a necessity.

From the viewpoint of medical research the federal government has placed within the reach of psychiatrists in this country through the creation of the U. S. Veterans' Bureau, the largest opportunity ever offered for the study of the relationship between vocational efficiency and neuro-mental mechanisms.

With the view of seizing upon this opportunity the writer entered upon the work somewhat over three years ago. The problems which presented themselves were large and the field in virgin shape. A certain amount of necessary machinery for administration had to be developed and allowed to find its growth. From the beginning the neuropsychiatric phase of this untrodden field was approached in a completely experimental attitude. In the first place we must obtain a satisfactory understanding of the man to be worked upon vocationally and then we must search for some key to unlock the entrance to the proper vocation for this particular man.

The means of getting the information about the man has been found the easiest part of the problem. However, it was soon found that vocational guidance was a discipline sometimes talked about but practically unknown. Men were put into "training" at a certain job or trade either because they expressed a preference for that objective, and there were no outstanding contraindications, or the training supervisor had an "opportunity" on his list to be filled, and the man filled it whether he wanted it or not. Of course, failures resulted. They were to be expected from such methods of approach. The man would be tried in another objective, and possibly several, and failing in all, training was then declared not feasible.

This would have been very well had our supervising methods been adequate, but as it was, all that was known was that the man had failed. The reasons for the failure, however, were usually entirely unknown and hence we were learning but little of the man and his vocational difficulties. More was needed in the way of closer supervision and study of the man under controlled circumstances and environment. This want led to the development of the Bellevue Vocational School from what was formerly the Bellevue College. In this school it was intended to carry out the experiment as nearly as possible on a laboratory basis, and to study each man as a personality, as an individual, not primarily as a medical problem, but as a vocational one in which a special neuropsychiatric knowledge would be used as a tool. In other words, it was made emphatic that we were not searching for a diagnosis, for diagnosis' sake, but that we were there for the purpose of applying vocational therapy to a man, and not to a diagnosis.

All types of neuropsychiatric conditions were sent to the school, not solely those wherein it was expected that success would be attained most easily. Here the men are actually tried out in a given trade or vocational objective, and this can be changed as often as necessary without the formality of any red tape whatsoever.

The man is not wanted in the school for more than ninety days for the purpose of this try-out. In some special instances a longer period has been permitted. It is not intended, in other words, that the man complete his training at Bellevue, but rather that it there be found out if he is trainable, feasible, and if so, in what vocation. If it is by this trial determined that he is feasible, he is then sent to some place in the district where the desired training may be properly given to him.

To date about 300 men have been enrolled in the school for try-out, and of those discharged about 60 per cent. have been considered as feasible for competitive training.

Among this number there are some wherein our previous neuropsychiatric experience would have led us to conclude that training was not feasible, a sufficient number at least to clearly show us that we have yet much to learn, not only regarding the degree of disability but as well concerning the vocational limitations thus created.

Inasmuch as it is found that of the total load approximately 50 per cent. are to be classed as psychoneurotic, we would naturally conclude that a great deal of the curative effect of work might be realized. It has been somewhat surprising to see the comparatively large number of praecox cases which have made good, certainly more than were anticipated.

Naturally our experience with epilepsies and mental deficiencies has not been a happy one, yet some reclamations have come as surprises, even among these groups. Again this goes to show that our preconceived notions on the subject are not so uniformly correct as we might have believed. Those disabled by purely neurological conditions, in which the mental element is negligible, have created no more difficulty than might be met with in a similar physical injury of parts other than the nervous system.

The work is yet young, something has to be learned, but it is hoped that much more may be added to our knowledge before the task is finished.

DISCUSSION

Dr. T. J. Heldt: Dr. Barnes has given us a clear exposition of some of the needs in meeting the rehabilitation of ex-service men with neuropsychiatric disabilities. The U. S. Veterans' Bureau School at Omaha supplies a long felt want and helps to bridge, for a limited number at least, a critical period in the rehabilitation of this type of case. Everyone of us is familiar with that apparently unavoidable or at least poorly met, problem of having ex-service men judiciously dealt with immediately after the cessation of their hospitalization. In many cases, for want of proper knowledge and training, men of the Federal Rehabilitation Board, endeavoring to guide neuropsychiatric patients, have really undone what the hospital with trained neuropsychiatrists had taken months to build up. By this statement it is not meant to lay blame upon the men referred to, but it does mean to call attention to an omission which is successfully corrected by the government's Omaha school.

In other words, neuropsychiatric claimants have there provided for them a probationary period, as it were, with ready access to neuropsychiatric counsel. Only rarely is recovery from a neuropsychiatric condition so complete that the patient can be at once entered in federal training entirely divorced from the psychotherapeutic adjustment that has helped him to find himself—hence, the need of just such an institution as has been discussed by Dr. Barnes. Its exact value can be brought to you in terms of cold percentages.

Only recently in "following up" 122 consecutive discharges from the U. S. Veterans' Hospital at Waukesha, Wisconsin, during the last four months of 1920, it was found that those apparently readjusting with the aid of federal training numbered only 21, or 17.3 per cent. Dr. Barnes, on the other hand, reports 104 of 277, or 37.9 per cent., making successful adjustment in as far as present indications can be accepted. This, then, is a net gain of 20 per cent. in favor of such management as undertaken by the Omaha school.

Dr. M. W. Hoge: Dr. Barnes' reference to cases of dementia praecox that made apparent recovery serves as a reminder of the necessity for caution in making this diagnosis, especially in the early stages of a psychosis.

Ever since Kraepelin's conception of dementia praecox became generally recognized, I have from time to time seen cases presenting its characteristic symptoms, that nevertheless recovered in the manner common in the acute functional psychoses, and

considering these, I formed the conclusion that, if an individual with definite introverted tendencies develops a psychosis, he may present the essential symptoms of D. P., but if his disorder is a recoverable one, may recover as any other patient with the same psychosis.

Dr. Wm. Edler: I do not think that Dr. Barnes meant to convey that 75 per cent. of these patients had made good in the competitive struggle of our economic social life. My impression of Dr. Barnes' statement was, that these men are making good in competitive training. In other words, these patients were drawing government pay while in this competitive training, and the ultimate benefit derived could only be used as a criterion when their training period with pay began to approach its end.

My experience with the psychoneurotic in training has been that patient's success is inversely proportional to the training termination: In other words, when the patient saw the time approaching where he would be put upon his own financial resources, his functional disturbances began to manifest themselves as a protection against financial loss. This complex assumed one of two directions, either for rehospitalization to secure hospital pay, or for retraining in some other occupation, so that the compensation could be continued indefinitely.

I think that Dr. Barnes would agree that the type of patient handled in this work did not have the social, economic or intellectual level of the average office type of patient, and that this factor entered greatly into the general solution of the problem.

I have patients trained and retrained a number of times over a period of years who reverted to their disabilities on nearing the end of their training, so as not to suffer financial loss. I feel that those interested in the work would agree that the early work of the Vocational Board immediately following the war was a travesty when patients, because they had educational handicaps, some of whom were actually mental defectives, had been trained in intellectual pursuits far beyond their capacity, and when such training had not only been useless, but had done infinite harm to the patient in trying to make an impossible adaptation. I have been much distressed with the impossibility of attempting to treat psychoneurotics with suggestive therapeutics, where the government saw fit to penalize the patient for getting well by withdrawing his compensation.

Experience has taught us in civil life that neuroses of a medico-legal nature did not recover until the compensation feature was settled. In spite of this knowledge, we are attempting to cure psychoneuroses in the post-war work by drawing out the compensation feature, if not ad infinitum at least ad mortem.

Dr. F. R. Fry: In Dr. Barnes' Bellevue Vocational School, I see a ray of hope that I have not so far discerned. It has always seemed to me that we needed standards of a different kind, actual clinical standards of a reliable kind in this work of rehabilitation. In the Bellevue scheme I hope we see the beginning of this.

Dr. S. I. Schwab: It seems to me that this experiment of Dr. Barnes may find a broader application in every-day, civilian life. It has often occurred to me the haphazard manner in which people choose their occupations, or have occupations chosen for them. There is never any rational attempt to determine the aptitude of the individual for the work, and no effort has been made, so far as I know, to work out a scheme by which something of the aptitudes may be determined. If Dr. Barnes' scheme proves successful, we shall have a method of trying out individuals in civil life to determine their peculiar fitness in an occupational way.

Dr. L. B. Alford: This is certainly a very in-

teresting experiment that Dr. Barnes has outlined, and I admire his courage and energy in carrying it through.

It has occurred to me that it will be very difficult to train psychoneurotic patients until some measure of cure has been accomplished, and that treatment should precede or accompany the work.

As for Dr. Hoge's reference to dementia praecox, I believe it is a mistake to let course decide the diagnosis as Kraepelin specifically states that remissions often lasting many years may occur in praecox.

Dr. Barnes (closing): Dr. Hoge has brought up the question of diagnosis and recovery of dementia praecox. As I said in the beginning, we are not treating diagnoses, but are trying to handle men as personalities. It is sufficient from our viewpoint in this work if we have to deal with a man whose character and behavior reactions resemble that picture which we have come to know as dementia praecox, and it is of entirely secondary medical interest if the condition be really praecox.

Dr. Heldt has hit upon the important factor in success with these men—they cannot be abruptly dropped from the refuge of hospitalization into the struggle under competitive conditions. This chasm must be bridged over if the transition is to be accomplished in safety.

Replying to Dr. Alford's query as to the time for treatment I should say that treatment should be coincident with occupation, and as a matter of fact although training was the term used, this in itself from the medical standpoint, was treatment; anything done for a disabled person whereby it is hoped he can be brought back to a better state of health is treatment, and therefore rehabilitation by vocational training is treatment above all else. If it were not so, as medical men we should have no interest in it.

I would disagree with Dr. Edler in his estimate of the general mental level of the claimants of the Bureau. It has not been my experience that they differ so greatly from the population at large. Dr. Edler must recall that in the hospitals he meets with but comparatively few of the total number of claimants, and rather naturally the less favorable element. I again disagree with Dr. Edler in reference to the role played by the so-called compensation neurosis. That there is such an element is in all probability true, but that this element is so large and ever-present as the doctor would have us believe, I have strong reason for doubting on the basis of my knowledge of the course of events in somewhere around five thousand claimants in this district. Rehabilitation, although it has not been as extensive as we might wish, has occurred more frequently than Dr. Edler is aware. Incidentally, regarding the hospitalization feature, I consider that the psychoneurotic who is routed to our present hospitals to be handled as a case number, and not an individual, is a mighty unfortunate man; the worst place in the world for him is the hospital.

Dr. Schwab has discussed the broader aspects of this problem from the viewpoint of the application of whatever results we may get from this study to our every-day existence. If from this study we learn anything at all of vocational guidance (and it would seem that we surely must), it will be more knowledge than we possessed before it was begun. This subject is so large that it is manifestly impossible to do justice to it in this discussion. I do appreciate the discussion which has been so full and helpful, as well as very stimulating to further work. In reply to Dr. Schwab's suggestion I might say that it is my intention shortly to publish some of the results so far attained together with a general consideration of the problem as a whole.

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ORIGINAL ARTICLES

SOME CLINICAL FEATURES IN THE DIAGNOSIS AND TREATMENT OF HEART FAILURE*

CLAUDE J. HUNT, M.D.

KANSAS CITY, MO.

Heart failure is the result of weakness or exhaustion of the heart muscle whereby it can no longer supply the organs of the body with sufficient blood for their proper functioning. This failure may be the result of some organic cardiac disease or some extra cardiac condition which has put an excessive amount of work upon the musculature. The heart will compensate, by hypertrophy, for this additional work for a variable period of time but finally when the reserve power is exhausted and the cardiac muscle can no longer meet the demands, it becomes fatigued, and dilates. Blood stasis in the various organs of the body follows and the symptoms arising therefrom are due to the insufficient function of these structures.

Gloomy prognoses are too often given upon the mere presence of cardiac hypertrophy or the finding of a murmur or an irregular pulse. We should not come to the conclusion that an organic heart condition exists because a murmur is heard or some disturbance of rhythm is discovered. They are, on the contrary, often of very little significance and bear no relation to heart disease. We must have additional information in order to make such a diagnosis.

These seemingly confusing conditions are not difficult of interpretation if we have a definite system of cardiac analysis upon which to work and if this plan is sufficiently broad to cover the different types of cardiac disease. One who has a comprehensive knowledge of the functions of the heart muscle can determine which function is at fault by a process of elimination.

These functions are five, namely: tonicity, rhythmicity, conductivity, contractility and ir-

ritability, and chief among these is tonicity. I wish to place special emphasis upon the functions of tonicity and rhythmicity and upon that particular type of disturbance of rhythm known as auricular fibrillation.

(1) *Tonicity*.—Tonicity is that property of the cardiac musculature which prevents dilatation and maintains the forceful normal contraction. Dilatation is not synonymous with loss of tone but is a result of its impairment. The chief features of the failure or loss of this function are, shortness of breath on exertion, cough, rales over the base of the lungs, cyanosis, swollen, tender liver, dropsy and albuminuria. Shortness of breath on exertion is the most important symptom without which there is no loss of tone. There may be considerable loss of tone without much dropsy, but when present and due to cardiac failure it is a positive sign of the failure of the function of tonicity. This is always secondary to shortness of breath. There is usually no disturbance of rhythm and the pulse rate is only moderately increased.

Exhaustion of the heart muscle is the cause of the failure of the function of tonicity. This may be due to hypertension (the most common cause), valvular lesions (aortic regurgitation, which is the most common; second, mitral stenosis, and lastly, mitral regurgitation, which is rare in adults), pericarditis, coronary disease, diseased condition of the heart muscle, dilated aorta, aneurysm, anemia, exhaustion of the ventricle due to auricular fibrillation, or the overwork of a normal heart. Thus having ascertained the cause, the treatment will naturally present itself.

Rest in bed is absolutely necessary and if the patient is restless and anxious, morphin should be given. Digitalis is the drug of choice and should be given in sufficient doses to obtain results. It will restore the tone and have little or no effect upon the blood pressure or the pulse rate. If hypertension exists, sodium nitrite will reduce peripheral resistance and thereby lessen the work of the heart. The nitrites, however, are only transient in their effect and should not be relied upon for any great length of time. Venesection is of great benefit if marked cyanosis, dyspnea, coughing

*Read at the Sixty-fifth Annual Meeting, Missouri State Medical Association, Jefferson City, May 2, 3, 4, 1922.

and raising of bloody sputum is a distressing factor. No danger is to be anticipated from this procedure and good results may follow.

(2) *Rhythmicity*.—The irregularities of heart action may be classified in one of the following seven types: auricular fibrillation, auricular flutter, sinus (respiratory or youthful) arrhythmia, extra systole, paroxysmal tachycardia, heart block, and pulsus alternans. They can usually be fairly easily classified by a careful study of the pulse, with one exception and that is auricular flutter; this requires a pulse or electrocardiographic tracing.

The polygraph and electrocardiograph have been of great value in recognizing arrhythmias and have given us the key to the classification of the various forms of cardiac irregularities. They should not take the place, however, of a careful study of the pulse, a thorough examination of the heart (particularly auscultation), and, perhaps most important of all, the sensations and experiences of the patient. If these fundamental principles of examination are carefully done and intelligently interpreted, the arrhythmias can most usually be accurately classified.

(a) *Auricular Fibrillation*.—This is the commonest irregularity in heart failure and is a condition as the name implies in which the auricles fail to contract but remain in a state of fibrillary twitching. The normal and regular impulses transmitted to the ventricle are replaced by rapid and haphazard impulses which produce very marked irregularity of ventricular action. One need only feel the pulse to disclose the nature of this disease. It is persistently irregular, and intimate mingling of changing pauses, with scarcely any two successive beats the same distance apart or the same size. The rate is usually between 100 and 160 beats per minute. It is when the pulse is slow, below 100, that close attention is necessary to classify the disorder, for with slower rate the irregularity is less pronounced.

If the pulse is not much accelerated and there is some difficulty in detecting the type of arrhythmia and there are no signs of heart failure one may have the patient exercise moderately. If fibrillation is present the pulse becomes more irregular with acceleration, while with other types of irregularity the pulse becomes more steady or entirely regular. Fibrillation is very rarely seen before the age of 7 years and in the non-rheumatic group is more common in men than in women, while in the rheumatic cases the sexes are more equally divided. Rheumatism is the most important single cause of fibrillation, next comes nephritis with hypertension, then focal infection, and lastly a group in which no demonstrable cause can be ascertained. Dilatation of the heart

does not produce this type of irregularity, but it is not uncommon for a marked fibrillation, with rapid heart action, to dilate a damaged exhausted ventricle. Auricular fibrillation is common following mitral stenosis and this naturally makes some change in the pre-systolic murmur. This new murmur varies as to position in diastole according to the heart rate and the degree of stenosis. If the pre-systolic murmur is long and rough this characteristic feature is still maintained but its relation to the cardiac cycle is altered. The murmur then has a fixed relation to the second sound at the apex. If the rate is rapid the murmur is heard early in diastole and fills the entire space to the first sound of the succeeding beat; if less rapid the murmur falls short of the first sound but involves about two-thirds of diastole; and if slow in rate there is a considerable space between the end of the murmur and the first sound, i. e., it is early diastolic. With the variation of the cardiac rate the entire series of murmur arrangements may be heard in the same case.

The presence of this diastolic murmur may cause some confusion with aortic regurgitation but this should never be diagnosed in the presence of an irregularity of this type unless some other very positive signs of it are present besides the diastolic murmur.

Embolic phenomena are sometimes observed in auricular fibrillation. There is considerable stasis of blood in the dilated auricles which condition predisposes to thrombosis in the appendices, and as the passivity of the auricle has been overcome, infarction may occur.

Auricular fibrillation illustrates very clearly how one function can be badly impaired and the other four remain normal, and it also illustrates how overwork can exhaust the heart muscle and produce a loss of tone with consequent dilatation and signs of blood stasis. This need not occur if the condition is recognized early and properly treated.

If some form of infection is found, as in the alveolar processes, nasal sinuses, tonsils, or gall-bladder, steps should be taken to remove it. Once fibrillation is not necessarily always fibrillation as was formerly thought. The following cases will illustrate this:

CASE 1. Mrs. D., age 24. Well and robust, no apparent heart lesion, suddenly developed a very rapid, irregular pulse with some shortness of breath. Pulse tracings were made and a confirmation of the diagnosis of auricular fibrillation obtained. After three weeks of rest in bed, digitalis and the removal of an infected tooth, no sign of the disease remained and there has been no recurrence for over five years. This was clearly a case due to oral infection.

CASE 2. Mrs. M., age 32. Highly nervous, much motor excitability and some mental symptoms, marked goiter, some exophthalmus and tachycardia. Pulse in a. m. was 120, and regular, while in the

p. m. of the same day, after much mental confusion and motor excitement, suddenly become very irregular, rate 130-140, typical of auricular fibrillation. She was given 1/250 gr. strophanthus intravenously and morphin for restlessness. The following morning patient was quiet, pulse regular and rate of 100 beats per minute. Death occurred several days later without a recurrence of the fibrillation. This demonstrates the possibility of a transitory fibrillation following cardiac exhaustion, i. e., overstrain.

Digitalis is the drug par excellence in the treatment of fibrillation. It acts almost like a specific, restoring the moribund and adding many years to their lives. It should be given in full doses and until results are obtained. It is in this class of cases that the drugs of the digitalis group owe their well-founded reputation. The tincture should be given in doses of 15 or 20 minims to one dram three or four times a day and continued until results are obtained and then only in such quantity as is required. There is no standard amount that should be given any particular case but each patient is a law unto himself. For this reason I have not outlined any of the methods advocated for the administration of digitalis. If the emergency of the case demands a rapidly acting remedy, strophanthin is the drug of choice. It should be given intravenously in doses of from 1/250 grain to 1/100 grain. This acts wonderfully well and is very rapid. I have seen no bad effects from its use.

These drugs act as specifics, impeding the passage of impulses from auricle to ventricle and thereby reducing the ventricular rate. If the rate does not fall under this treatment no other drug is of service in reducing it.

Morphin is very beneficial and should be given if restlessness and insomnia are a factor. Many cases are left to go from bad to worse and even die because this drug is withheld.

(b) *Auricular Flutter*.—Auricular flutter is characterized by a persistent, regular tachycardia of cardiac origin. The ventricular rate is usually between 120 and 160 which is about half of the auricular. This acceleration is noted for its uniform rate under all conditions and persists without apparent cause. It is more common in the elderly and those of arteriosclerotic tendencies. Polographic or electrocardiographic tracings are almost essential for a definite proof of the existence of this condition. No previous infection can be traced. It is thought by some that rheumatic fever or syphilis often bear a relation to it. Digitalis may be given; if fibrillation occurs it is not alarming. After the withdrawal of the drug the rate may return to normal.

(c) *Sinus, Respiratory or Youthful Arrhythmia*.—This is not an organic heart condition

but is due to an unstable condition of the vagus. It is as the name implies essentially an arrhythmia of youth, rarely seen after the ages of 12 or 14 years and is about the only irregularity except heart block that occurs in childhood. This irregularity will usually disappear after full doses of atropin, or anything which will increase the heart action. It is made more pronounced on deep breathing.

(d) *Extra Systoles*.—This is a form of arrhythmia which disturbs the rhythmic sequence of the heart action by appearing early and in response to newly formed impulses in the musculature. These impulses may spring abruptly from the auricle, ventricle or from the uniting tissue. Thus they may be auricular or ventricular in origin. Extra systoles are not at all uncommon and most people who have lived to old age have been affected with this irregularity at some time or other. The condition is an evidence of irritability but does not necessarily mean that the myocardium is affected. It often bears a definite relation to excessive use of tobacco, alcohol, tea or coffee, or some focus of infection. It sometimes occurs in association with mitral stenosis, aortic regurgitation, acute febrile diseases, diphtheria, and degeneration of the heart muscle. The causative factor should be ascertained and removed if possible. Apical abscesses should be drained and all other foci eradicated. Bromides are of service as they lessen irritability while digitalis may increase this property and thus do harm.

(e) *Paroxysmal Tachycardia*.—Paroxysmal tachycardia is characterized by the sudden onset of a series of very rapid and regular heart beats, which vary in rate from 120 to 200 per minute, last from a few minutes to several hours or even days, and terminate abruptly. The majority of cases bear no definite relation to organic heart disease as most cases show no signs of valvular lesions or evidence of myocardial involvement. However, hypertension, pericarditis, aneurysm and valvular diseases may be the causative factor and should be sought. Foci of infection may augment or cause the attacks. They usually bear a definite relation to exertion or emotion.

To stop an attack one should direct his efforts to the stimulation of the vagus. This sometimes is accomplished by pressure over one or other vagus nerve, pressure on the eyeball, or by holding the breath at the end of a deep inspiration.

If these simple procedures do not give results, digitalis by its effect upon the vagus, may be beneficial, or better still an intravenous injection of strophanthin.

(f) *Heart Block*.—In this type of arrhythmia the ventricle does not always respond to the

auricular impulses, due to some disturbance of the function of the bundle of His. This deficiency of conductivity may produce complete or incomplete heart block. Complete heart block is the easiest heart affection to diagnose, always having a rate of 35 beats per minute or less and perfectly regular.

Incomplete heart block may be confused with extra systoles but if disease exists in the bundle of His one does not hear a heart contraction during the pause in the pulse. Syphilis is frequently an etiological factor and should always be kept in mind. If present, antisyphilitic treatment should be instituted. When there are signs of a failing myocardium and the pulse is regular, digitalis should be given. When syncope is present I know of no remedy that will increase the pulse or revive the patient.

(g) *Pulsus Alternans*.—This is a condition in which the ventricle expels with each alternate systole a greater or lesser quantity of blood. It is very difficult to detect by palpating the pulse but the blood pressure reading shows a difference of several millimeters. It is of grave significance as it indicates a high-grade disturbance of the function of contractility. Rest is the only treatment and drugs have no beneficial effect.

(3) *Conductivity*.—The loss of this function is beautifully illustrated in heart block, there being a disturbance of conductivity involving the inter-auricular ventricular tissue.

(4) *Contractility*.—A defect of this function has already been described under pulsus alternans.

(5) *Irritability*.—With an increase of this function extra systoles often occur but are not of themselves an indication of heart disease.

I have already in a brief way mentioned the treatment of these conditions and shall close with a few additional remarks, placing emphasis upon certain phases.

Rest is of the greatest importance in the treatment of heart failure and should be insisted upon regardless of the wishes of the patient. Failure to impress this one necessity causes many unsatisfactory results. Without it one cannot expect results from medication and I believe much of the praise given digitalis and allied drugs belongs properly to rest. The patient should be in bed in a semi-prone or even upright position and as little readjusting to patient should be done as possible.

Digitalis is by far the best drug to employ in the treatment of heart failure and if used properly after an accurate determination of the function that is at fault one will usually get favorable results. Digitalis has been used in-

discriminately for almost any heart disorder for many years and naturally with many failures. It is not, however, without harmful effects and should be prescribed very cautiously when there is a disturbance of conductivity, contractility or irritability. It may convert an incomplete heart block into a complete block, also a pulsus alternans may be augmented and extra systoles become more pronounced.

More marked beneficial results are obtained from its use in auricular fibrillation and in a loss of the function of tonicity. It acts quite differently upon the two conditions. In fibrillation it will restore the rhythm in part or almost completely, by slowing the pulse and increasing its volume, but when the rhythm is regular, as in loss of tone, it has very little effect upon the rate and the blood pressure is very slightly affected.

There are many preparations of digitalis on the market, most of them of little value. Mackenzie, the greatest authority on the heart, says when he fails to get results with the tincture he fails with any other preparation. The active glucosides of digitalis are unsatisfactory given subcutaneously, as they are very painful and may cause considerable tenderness, redness and discomfort to the patient.

Digitalis does not act the same upon all patients; some respond much more readily than others. Some cases of fibrillation will respond on one-half the amount required for another. One should push the drug almost to physiological action and then reduce in quantity sufficient to maintain the desired results. Digitalization is indicated in fibrillation by slowing of the heart rate, gastric disturbance and headache; while if the rhythm is regular extra systoles and headache develop. It should be discontinued for a time when this occurs. Nausea is a variable symptom and is rarely caused by too much digitalis. It is far more frequently the result of blood stasis of the digestive viscera which the proper administration of digitalis will abolish.

I have already spoken of the value of strophanthin. I wish, however, to emphasize the fact that it should always be given intravenously and never subcutaneously as it is very painful and may cause an abscess. It is especially beneficial in auricular fibrillation, acting almost like a specific. The chief indication for its use is where time is a factor and one does not want to wait for the slower action of digitalis. It has the same action as digitalis. It is seldom necessary to repeat the dose more often than once in 24 to 48 hours, and in many cases one or two injections each week are sufficient. It is sometimes beneficial in paroxysmal tachycardia.

I have had no personal experience in the use of quinidin. From the literature I cannot see that it has any particular advantage over digitalis and strophanthin and I believe that it is not without danger.

I have purposely not mentioned camphor in oil, adrenalin, alcohol, aromatic spirits of ammonia, strychnin and caffien, as they have no great value in the treatment of heart failure.

Morphin is of the greatest importance and should not be withheld if indicated. It lessens nervousness, relieves pain, induces sleep, slows the pulse rate and stimulates the vagus center. All these are very essential in the treatment of the over-anxious, sleepless, exhausted heart case. I believe that with digitalis, strophanthin and morphin, one can treat intelligently most cases of heart failure.

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A WORKING HYPOTHESIS AS TO THE CAUSE AND CURE OF PERNICIOUS ANEMIA*

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To the claims of lasting cure in pernicious anemia, Dr. Wm. J. Mayo surely sums up the overwhelmingly prevailing sentiment of the day when he says: "If the remission persists indefinitely, the diagnosis was wrong." Minot¹ phrases it: "Pernicious anemia is an idiopathic disease that progresses slowly, usually by remissions, to a fatal outcome." In such a status of perhaps 100 per cent. failure it would seem reasonable to consider seriously any suggestion offered, even a frank hypothesis. My entry for this Gordian knot prize is simple; simple enough, history teaches us, to be true. It has three further claims for consideration, first, that even though I chance to specialize in surgery it does not call for any incision; second, that it does not trace the etiology to dysfunction of the endocrines, and, third, that it irritates specialists in internal medicine. To prevent those who are only impressed by prolonged clinical experience or laboratory research from wasting their time, let me add that this article contains of an original character scarcely a trace of either. On the other hand, it does claim to analyze the standard reports in the literature from a fundamentally original point of view. Confess to having followed the unscientific (?) method of having my hypothesis full-blown before making the detailed search for evidence. My defense is, that's why I made the search! And my promise, a conscious attempt to be fair.

From the very beginning of the separation of pernicious anemia from the other anemias right up to present date, practically every observer noted as of differential diagnostic value the gastrointestinal symptomatology. For example, Grawitz² states: "The essential cause of this disease is intestinal autointoxication." Cabot³ lists under the heading of symptoms more or less peculiar to pernicious anemia, gastrointestinal upsets and tongue changes. Barker and Sprunt⁴ give, as one of two possible causes, enterogenous intoxication. As this more or less characteristic gastrointestinal upset is apparently universally conceded in both the old and new literature, these quotations surely suffice. Either by direct statement or through treatment advocated it seems fair to assume that most observers consider the gastrointestinal upsets as at least a partial cause of the anemia. Whether this hypothetical poison absorbed from the gastrointestinal tract is a product of bacterial activity or results from undigested protein absorption, or both, may be omitted as immaterial to our question. So far as noted, nobody considered the variegated nervous symptoms as a cause, but all accepted them as an effect of the disease. Furthermore, apparently everybody agrees that the disease is due to terrific erythrocytic destruction, with, during all stages except the absolute terminal, very marked hyperactivity of the erythroblastic function.

ATROPHY OF GASTRIC MUCOSA

Beyond the erythrocytic destruction and regeneration, the one feature of this disease that is becoming accepted as practically universal is the absence or at least very marked diminution of hydrochloric acid throughout gastric digestion. In earlier stages of our studies of pernicious anemia this feature was less stressed, even Grawitz, for example, reporting as one of his alleged cures a young woman with severe gastric hemorrhages and an accompanying well-marked acidity. The important more recent statistics to be noted are Cabot³, 78 out of 79 showing absence of free HCl; Levine and Ladd⁵ (Johns Hopkins), 104 out of 105 showing absence of free HCl; while Minot¹ states: "It is however a fact, as Martius and Lubarsch among others have shown, that absence or at least very marked diminution of hydrochloric acid is found in practically every case." On the other hand, Friedenwald and Morrison⁶ in 1919 still reported 7 per cent. normal HCl out of 57 cases. However, in view of the general agreement of these statistics and the well-known difficulty of differential diagnosis to exclude gastric cancer, intestinal parasites and other even more obscure anemias, it does not strike me as un-

*Read at the St. Louis Medical Society, Sept. 19, 1922.

reasonable to argue that the one or two cases out of a hundred with presence of HCl in normal range are in reality mistakes in diagnosis. Fact is, the most recent European report noted, Roth and Sternberg⁷, accepts the absence of free HCl as the final differential diagnostic test. This was also the position firmly taken by Lichty in the discussion following Friedenwald and Morrison's paper. In view of the accepted fact that the blood picture of pernicious anemia can be absolutely duplicated by other causes, the fish tapeworm for example, this HCl check strikes me as demanding the stressing that it is getting lately by many observers.

The other alimentary tract changes are less characteristic and constant, or at least have been noted much less frequently in the literature. Most everybody, however, has noted rather characteristic changes in the mucosa of the tongue in a large percentage of their cases. Inasmuch as this mucosa goes through a hyperplastic stage followed by secondary atrophy, and other causes may yield the same picture, it is obvious that it would always give latitude for differences in interpretation and at best have only negative value, i. e., an absolutely normal tongue, not pernicious anemia. Minot and others suspect corresponding changes in the esophagus on the basis of clinical symptomatology, but did not report a checking up by esophagoscopy or post-mortem examination. As regards the mucosa of the stomach, all observers noted agree that by the time of death the great majority of cases have a well-marked atrophy of the gastric tubules. Some cases are recorded, more particularly in the older literature, which failed to show this atrophy at post-mortem. My explanation for these exceptions to the general rule is, that such patients chanced to die before the anatomic atrophy had had time to become complete; or that the diagnosis was wrong. But inasmuch as the remainder of this discussion will maintain that pernicious anemia is the end result of the persistent absence or at least very marked decrease of HCl and pepsin, let me here quote Cabot, who takes the strongest negative stand. His position, by the way, was strongly supported by Einhorn, Bassler and Friedman in the discussion following Friedenwald and Morrison's paper. Speaking of gastric atrophy, Cabot says, (a) "The lesion is very possibly due to post-mortem changes; (b) the number of cases in which no such atrophy is found is also considerable; (c) even though this lesion were a constant one there would be no good reason for supposing that it is the cause rather than the result of the disease which we are studying." The rest of this paper will attempt to supply such reasons.

As regards experimental evidence that the absence of gastric HCl plus pepsin will even-

tually cause the development of pernicious anemia in lower animals, none was found or undertaken. Such work would carry one far afield and the obvious difficulties strike me as very great if not absolutely insurmountable. The only human evidence noted is that of Hartman⁸ from the Mayo clinic. He reports on the only two known cases of complete gastrectomy which survived the operation for a period of four years, the Moynihan case dying with a very profound anemia without obvious etiology at post-mortem, while the Mayo case also gradually developed a profound anemia resistant to ordinary measures. Hartman openly speculates as to whether this finding is a clue to the unknown etiology of pernicious anemia, but qualifies his tentative surmise by questions about the definite diagnosis and does not show any inclination to follow what strikes me as the rational clinical test to prove or disprove his theory.

And now, to be fair, let me admit that some consider chronic sepsis or focal infection to be the primary cause of this anemia. Hunter⁹ stressed particularly infections of the mouth and teeth, while others have emphasized the other commonly infected organs, as tonsils, appendix, gall-bladder, etc. Personally, I agree with the majority opinion—that such findings represent accidental concomitant pathology—and can find no evidence that such infections run higher in pernicious anemia than in corresponding people of same age and condition without this disease. When present they are therefore to be considered as complications, never as the primary cause. While the spleen is commonly enlarged, it is certainly not more so than we would expect a priori from the well-known febrile reactions during the normal course of the disease. Splenectomy, it strikes me, has now been sufficiently tried to prove its inefficacy. The only other concomitant post-mortem finding worthy of special note is the finding of gastric cancer. It strikes me as very probable that a primary atrophy of the tubules may in some cases lead to pernicious anemia, while in other cases during this involution a small clinically unimportant cancer may develop, and in still others the whole picture become dominated by a fulminating gastric cancer. The tendency for cancer to develop during atrophic retrogression being generally known, this speculation opens the question as to whether both the cancer and the anacidity are to be traced back to a common factor, i. e., atrophy of the gastric tubules.

THE CLINICAL TEST

Having now summarized the evidence from the literature to support my hunch that pernicious anemia is due to a great diminution,

eventually absence of HCl and pepsin from the functioning gastric contents, I am now appealing to any reader sufficiently open-minded to give this theory a clinical test. Experience has taught me there won't be many and most of the starters will set out to disprove it. But any who will take it up, no matter in what frame of mind, are hereby urged to enter. The first objection raised is, "Why, doctor, that's old, disproven stuff!" or, "I always use HCl but it does little if any good." However, so far as I've been able to find out, nobody has ever suggested using HCl plus pepsin with the faith and dosage I'm advocating. Martius¹⁰ proved to his own satisfaction that it was impossible to replace the normal amount of HCl from a medicine glass and, further, that it wasn't at all necessary. Apparently his influence still carries the day, for Cabot doesn't mention HCl in treatment, while Minot in 26 pages devoted to treatment dismisses HCl with the statement, "Dilute hydrochloric acid, both before and after meals, is valuable in cases of pernicious anemia, as with other anacidity cases, but hydrochloric acid cannot be taken when mouth symptoms are active." Barker and Sprunt, seconded in discussion by Christian, finally begin to break away from the established custom. They advocate 20 to 30 drops dilute HCl, pepsin—pancreatin with the meal, and to be repeated a half hour later. That begins to approach what strikes me in theory as offering a chance to accomplish real good and, be it noted, they report some apparent cures. Why the pancreatin is given is not explained and, as it is disagreeable to take and hence would decrease the likelihood of the patient continuing the necessary HCl plus pepsin, should in my judgment be omitted.

If an honest effort is to be made to replace the absent HCl and pepsin we should at least approximate the physiologic conditions. That obviously calls for small amounts of one-tenth to one-fourth per cent. HCl more or less continuously throughout the period of gastric digestion. If a larger dose were poured into the stomach at one time, it would probably pass right out through the pylorus and, in case it were not completely neutralized by the bile and pancreatic juices, might actually do harm through acidification of loops of small intestines. As some of this and the following physiology will not be acceptable to certain specialists in physiology, let me confess that inasmuch as my special training has been in anatomy, I cannot bring myself to accept any physiology which does not rest on a firm anatomic foundation. For any interested in a more detailed why than can be entered into in this brief discussion of the abdominal physi-

ology herein accepted, let me refer them to Pitzman's *Fundamentals of Human Anatomy*.*

My suggestion as to dosage therefore would be 20 to 30 drops dilute HCl and pepsin in a full glass of water, gradually sipped and repeated at half-hour intervals until the stomach had probably emptied itself. After the big meal of the day this would obviously ordinarily call for at least 4 to 6 glasses. For those timorous about the dosage advocated my suggestion would be to start with 10 drops, but to continue the glass at half-hour intervals throughout gastric digestion. For further reassurance there are a number of authenticated cases of physicians, sufferers from achylia gastrica, who have taken 2 to 3 teaspoonfuls of dilute HCl daily over periods of years with, so far as noted, only benefit. As it takes over twenty drops of dilute hydrochloric acid before excess free hydrochloric acid appears in an ordinary glass of milk, the dosage advocated strikes me as distinctly conservative, erring rather on the side of under than overdosage. (See reference 11.)

Under this regimen I would expect the liver and pancreas to pour out their secretions normally as called for by the physiologic duodenal contents. Should this actually occur it is possible that the whole intestinal indigestion would disappear (unless the condition had actually progressed to atrophy of the intestinal mucosa) and the patient rapidly return to a normal status. But these patients would have to continue their medication until some other type of death closed the account, perchance in lesser dosage should the impaired gastric secretion pick up with improvement in the general health. In such cases as will not swallow even the one-tenth of 1 per cent. free HCl on account of an irritated mouth or throat or nervous system, an obvious alternative is to allow the hydrochloric acid to combine with the food before being swallowed. But if your patient does not get or will not take HCl and pepsin in physiologic doses continuously, he or she is not on my suggested treatment. Another negative is, if you continue the tried and what I consider found wanting methods—specifically arsenic, iron, intestinal antiseptics, blood transfusion, splenectomy, etc.—please do not consider such cases a test of my proposition, even if my theory chanced to be used as a gunshot addition.

RELATIONSHIP TO ACHYLIA GASTRICA

And now the disease achylia gastrica demands at least a brief consideration because many will argue that such patients live indefinitely in ordinary health without any HCl or

*C. V. Mosby Co., 1920, pp. 160-188.

pepsin, either naturally secreted or artificially introduced. Some men seem even to have gotten excited and mad about gastric chemical analysis, for if you had nothing else to go by but their reports you might come to the conclusion that hydrochloric acid was in reality a useless accessory in digestion. If their diagnosis of achylia gastrica is based simply on a single examination, or even more or less constant lack of free HCl following test meals, their position is unimprovable. Because all experimental work quoted by Sahli* for example shows free HCl to be unessential. But according to the same authority a reasonable amount of HCl combined with the proteins is absolutely essential for gastric digestion. Further, this is also, in a widespread opinion with which I obviously concur fully, essential for proper intestinal digestion. Whether this combined HCl protein in the first part of the duodenum is a sufficient reagent to call forth the physiologic outpouring of bile and pancreatic juices, or whether free HCl is needed in addition for absolutely normal functioning is, so far as I found out, still an uninvestigated question. All experimental evidence noted, however, showed that those ducts failed to functionate normally in the presence of neutral or alkaline duodenal contents, but poured out their secretion in response to the presence of any of the common mineral acids.

Sailer's paper on achylia gastrica¹¹ at the recent St. Louis session of the A. M. A. emphasized the pitfalls in this diagnosis, showing that many cases labelled achylia gastrica were simply cases of delayed or diminished secretion as brought out by fractional analysis, while others had a temporary or functional character, inasmuch as gastric secretion returned erratically from time to time, or even permanently. In view of this report I certainly would not accept as genuine any case of symptomless achylia gastrica, unless removals of stomach contents at unexpected times to exclude nervous hyposecretion checked the result. And then my advice would be, in any serious case not amenable to ordinary hygienic and dietary measures, put and keep such patients on full HCl and pepsin treatment for as long as the disturbance lasts. Otherwise all the evidence noted points to troubles ahead. For surely most cases of marked and persistent gastric hyposecretion, when untreated, results in continuous gastric and intestinal upsets. The gastric picture strikes me as a true vicious circle for, with the diminution or absence of HCl, the resultant bacterial activity and pus formation would certainly tend to make a bad matter worse. That competent observers consider intestinal indigestion an intrinsic part of the picture of lasting gastric hyposecretion,

may be noted in Soper's emphasis on excessive mucopus in intestinal contents of true cases of achylia gastrica (discussion of Sailer's paper). For details see reference 12.

Further the danger that such patients will eventually develop pernicious anemia is evidently not inconsiderable, as may be noted in the recent case reports of Levine and Ladd, Christian, and Harris in discussion of Sailer's paper. These six cases were diagnosed achylia gastrica with normal blood picture proven and returned some years later with definite pernicious anemia. An earlier report giving the detailed history of three cases of achylia gastrica, which eventually developed pernicious anemia, is by Faber.¹³ Although Faber concedes fully in the body of his article that diminished gastric secretion occurs as a secondary complication in many extra-gastric illnesses, his final conclusion from all evidence submitted is, "That the achylia gastrica stands in a causal relationship to the pernicious anemia." As the ordinary secondary anemias with achylia gastrica are common, my position is obviously, that in order to justify a diagnosis of pernicious anemia we must have *both* the typical blood picture and the achylia gastrica. Finally, for those cases of achylia gastrica based on an organic atrophy of the gastric tubules, the danger of secondary cancer formation is obviously great, more especially if untreated or improperly treated.

To date only four cases of uncomplicated pernicious anemia have been treated under the author's direct supervision. In all of these cases the clinical results to date are fully up to the highest possible expectations—that is the gastrointestinal symptomatology vanished promptly, while the red blood count mounted progressively. The first three of these cases had scarcely held their entrance status under the customary treatments, including blood transfusions and arsenicals, but reacted immediately to full doses of hydrochloric acid. The fourth case (personal) had no treatment at any stage except 20 drops HCl, four doses after each meal, and yet within eight weeks the blood count had gone from 2,000,000 to 4,500,000, and apparently is staying at the latter figure. With reference to the use of arsenicals, the second case, through a misunderstanding, was continued on customary doses, but the red blood count did not mount until after the arsenical was discontinued. Which makes me insist again that for the purpose of scientific deductions, combination treatments are absolutely valueless. My suggestion would be to study the whole article (not merely an abstract) and then make up your mind to try it out conscientiously, or cast it entirely aside. In due course of time these and any other cases coming under my super-

*Potter's Translation. Saunders Co., 1914, pp. 460-462.

vision, will be reported in detail. Reports of clinical tests, either favorable or unfavorable, are invited.

SUMMARY

1. That beyond the blood destruction and regeneration, the one factor practically universal in all cases of pernicious anemia is a marked hypo- or absolute absence of gastric secretion.

2. The evidence in the literature is summarized, both for and against the proposition that this severe and prolonged hyposecretion eventually results in pernicious anemia.

3. The anatomico-physiologic basis is given on which it is maintained that the present dosage and timing of HCl with pepsin is pathetically deficient—hence no reason to expect real results, either in theory or ipso facto, in practice.

4. A theory is advanced which traces both pernicious anemia and many cases of gastric carcinoma back to a primary atrophy of the gastric tubules, including suggestions for prophylaxis.

Wall Building.

REFERENCES

1. Minot: Oxford Medicine, 1921, Vol. 1, pp. 611-679.
2. Grawitz: Klinische Pathologie des Blutes, 1906, Thieme, Leipsig.
3. Cabot: Osler's Modern Medicine, 1908, Vol. IV, pp. 612-636.
4. Barker and Sprunt: Jour. Amer. Med. Assn., 1917, Vol. LXIX, pp. 1919-27.
5. Levine and Ladd: Johns Hopkins Bulletin, 1921, Vol. XXXII, pp. 254-266.
6. Friedenwald and Morrison: Jour. Amer. Med. Assn., 1919, Vol. LXXIII, pp. 407-410.
7. Roth and Sternberg: Med. Klinik, Berlin, 1922, Vol. XVIII, pp. 274-275.
8. Hartman: Amer. Jour. Med. Sciences, 1921, Vol. CLXII, pp. 201-206.
9. Hunter: Severest Anemias, 1909, London.
10. Martius and Lubarsch: Achylia Gastrica, 1897, Deuticke, Leipsig.
11. Sailer: Jour. Amer. Med. Assn., 1922, Vol. LXXIX, pp. 1221-1224.
12. Soper: Southern Med. Jour., 1919, Vol. XII, pp. 235-238.
13. Faber: Berliner Klin. Wochs'ft., 1913, Vol. I, pp. 958-962.

LEUCODERMA IMPROVED BY QUARTZ LIGHT

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Acquired loss of skin pigment may be divided into two easily differentiated clinical types. One type, that to which the term vitiligo should be confined, not uncommonly causes the affected areas of skin to pass through a primary erythematous (often hyperpigmented) stage before they become achromic. Also, in vitiligo it is almost invariably noted that the skin bordering the achromic areas is more or less hyperpigmented. As the causes of vitiligo are various, it is rather a

symptom than a disease. Not all of the causes of vitiligo are known, but syphilis, leprosy and thyrotoxicosis are known to be able to precipitate it. Since the clinical significance of vitiligo has become better known, we are enabled to devise a rational cure for some cases by curing or improving the underlying cause.

A rational therapy is not, however, available for the other type of acquired pigment loss. This other type, to which the term leucoderma should be restricted, is a primary pigment atrophy of unknown cause. Not only is the cause or causes of leucoderma unknown, but the mechanism whereby it is brought about is still practically unknown. Thus lacking a knowledge of its etiology and pathogenesis, we are unable to devise a rational therapy. Nor, indeed, have any of the several empiric methods succeeded in effecting a clinical improvement of leucoderma. Hence it is a matter of interest to record the results obtained by the use of one of the newer therapeutic agents. More especially so since there is surprisingly little on the subject in medical literature. Considering the fact that it has been known for many decades that the shorter spectral rays are able to cause a hyperpigmentation of normal skin, it is rather remarkable that they have not been more extensively employed experimentally in leucoderma and in vitiligo.

The first case of pigment atrophy treated by short spectral radiations was a case of vitiligo reported by Montgomery.¹ The London Hospital lamp was used and the exposures were for ten minutes each without compression (marked erythema being produced). In a course of nine sittings, each patch of vitiligo received about five radiations. Five months later the patient wrote that "there was not a sign of a patch on the face, and those on the hands had nearly all disappeared." The patient was a nineteen-year-old Mexican lad.

Buschke² treated four cases of vitiligo with the Kromayer lamp. He was able to report only partial success. The new pigment appeared in the epidermis and primarily about the follicles. The pigment became net-like but never confluent. The pigmentation almost completely disappeared after four months. Buschke and Mulzer³ arrived at the same results. Moser⁴ treated one case of "leukopathie" with seven radiations from the Kromayer lamp. He noted a cessation in the loss of pigment and a new deposition of pigment. Ehrmann⁵ succeeded in obtaining partial pigmentation.

By means of the Kromayer lamp, Stein⁷ succeeded in producing pigmented spots like freckles by exposing the vitiligo patches for ten to twenty minutes at a distance of .5 cm. from the lamp; the spots appeared in four or

five weeks and seemed to persist. Unlike Buschke he was unable to produce pigmented spots by exposures of only a few minutes.

Leucoderma has been observed to disappear following the exposure of the body to the direct rays of the sun in the summer months.^{5, 9}

Pringle and MacDonough⁸ assured themselves of "the efficacy of exposure to the quick-silver quartz lamp of Kromayer, although further evidence as to its permanence is desirable." Ormsby¹¹ treated four cases without results. Sutton¹³ reported the successful use of the lamp in one case.

Carl With¹⁶ observed the effect of generalized ultra-violet baths on leucoderma. The light baths were employed primarily for tuberculosis, the observations on leucoderma being incidental. With used the universal carbon arc lamp and gave his patients, five men and two women, sittings of two and a half hours every day or every second day. In all of his patients With obtained a more or less complete pigmentation in the achromic areas. Pigmentation of the achromic areas commenced after the first few light baths, but was not extensively developed until nearly a hundred or more baths had been given. With confirmed the observation that the pigmentation commenced about the hair follicles. According to him "the process of pigmentation begins in the periphery and spreads little by little towards the center; the islets gradually become peninsulas and lastly we get diffused pigmentation. The new spots are at the beginning rather pale, but become by degrees darker and darker. The question of how long these pigmented spots last in the vitiligo patches we have not yet solved. Probably they remain there for several years."

King and Parker¹³ in 1916 described to Sutton the improvement of one case of leucoderma under the Kromayer lamp radiation. Under date of February 24, 1922, Dr. King¹⁷ wrote: "Since then I have used the Kromayer lamp on several cases very persistently with no effect whatever."

The author has improved two cases of leucoderma by means of ultra-violet radiation. Complete pigmentation of some of the areas was obtained. More or less pigmentation was developed in all of the areas, the degree of pigmentation in some areas effecting a very acceptable cosmetic improvement. The quartz light pigmentation of the achromic areas has now persisted for over six months with no apparent loss of the acquired pigment. The leucodermic areas that responded with complete or nearly complete pigmentation as a result of the use of the quartz light were the ones situated on the face. Achromic areas on covered surfaces of the body responded to the

light with only a partial degree of pigmentation, the degree of pigmentation in an area being approximately in inverse ratio with the degree to which it had been habitually kept protected from the sun's rays.

Technic.—The author's earliest work with the quartz lamp in leucoderma was of necessity experimental as no description of technic suitable for the Kromayer lamp could be found in the literature. The technic the author now chooses as the method of election consists in producing a marked second degree dermatitis by use of unscreened rays from the Kromayer lamp (Hanovia type) applied directly to the skin through a quartz compressor. During the treatment the skin is kept anemic by firm pressure of the quartz compressor into the skin. The normal skin surrounding the leucodermic areas should be protected by adhesive tape. The tape should be cut so as to overlap the achromic area very slightly, thereby preventing a hyperpigmentation of the normal skin around the lesion. Each area receives an exposure to the rays of two to five minutes depending upon the age (activity) of the burner, and the site of the achromic area; the thicker the epidermis, the longer the exposure. Brunettes require longer exposures than blonds. From experience the author is led to believe that covered surfaces are only very slightly more sensitive to the ultra-violet rays than are uncovered surfaces of equal thickness and degree of pigmentation.

CASE REPORTS

CASE 1. V. N., a girl, born December 30, 1907, was referred to the author by Dr. H. J. Niebruegge on June 4, 1921. She then had a leucoderma that was first noticed some three or four weeks previously. She had been in continuous good health for the preceding four years, or since she had had scarlet fever at the age of ten years. No nasal suppuration, tonsillitis or other focus of infection could be detected. Menses were first noticed two and a half months before the onset of the leucoderma. They occurred normally during the eleven months that the patient was under my observation. One week after the leucoderma was first noticed her younger brother sickened with the scarlet fever.

The leucoderma first appeared on the forehead. A few days later it appeared on the backs of the hands, and then on the ventral aspect of the wrists and forearms. Some seven to ten days later it appeared on the sides of the neck and spread onto the chest. On both sides of the first thoracic vertebral spine were achromic areas; their date of appearance was not definitely known. No other skin surfaces were involved except about the right elbow where there were three very small achromic areas. The leucoderma on the neck continued to extend during the first week the patient was under treatment.

Treatments with the Kromayer lamp were given on June 8, 11, 16, 20, 24, 30, July 12, 22, 30, August 3, 23, 27, September 4, 10, 17, 28, October 7, 15, 26, November 3, 12, 26, December 1, 7 and 14. At each sitting about one-third of the total achromic tissue was exposed to radiation. The first ten sittings were given without compression; the duration

of the first five was for two minutes to each area treated; the duration of the last five, five minutes to each area treated. These radiations were followed by a slight amount of pigmentation. However, a continuance of the pigmentation did not seem to occur under this technic. Consequently all of the next treatments were given with quartz compression. The duration of the first of the latter radiations was for one minute; that of the last nine was from three to five minutes. Following the longer radiations under compression there was developed a second degree burn of moderate severity. On the subsidence of the dermatitis there was left in the achromic tissue a deposit of pigment that closely equalled the amount of pigment in the normal skin adjacent to the leucodermic areas. As the result of three or four blistering doses to each area, the patient obtained a satisfactory cosmetic result. The leucodermic areas on the face and part of the neck were completely masked by a deposit of pigment that appeared normal in color and distribution. The leucodermic areas on the back, arms and covered part of the chest were partially pigmented in all parts, but completely pigmented in only about a half part of each of the latter areas. Had the patient been able to continue the treatment for a short time longer, a complete pigmentation would very likely have been obtained. When she was seen by the author over five months after the last treatment, there was no apparent diminution in the amount of pigment that had been produced in the leucodermic areas.

CASE 2. L. F., a young man eighteen years of age, was referred to me on June 4, 1921, by Dr. Ralph Kinsella. The patient had a leucoderma of two years' duration. Except for small, septic tonsils, he was otherwise in good health as far as could be learned. Since childhood he had had no illness except influenza and attacks of sore throat. The last attack of sore throat of which he remembered was between six and eight months before the leucoderma was first noticed. The patient was of good height but of slight build, and was less robust muscularly than the average of his build. Temperamentally he was quiet and gentle mannered, though mentally alert, and not physically phlegmatic. His voice inclined towards the feminine type. The pubic and other secondary characters were slightly suggestive of the feminine habitus.

The distribution of the leucoderma very strongly suggested that traumatism entered into the etiologic complex. All the areas were located over sites of bony prominence or obvious pressure. The most striking series of lesions extended down the midline of the back from the seventh cervical to the fourth sacral vertebra, the lumbar curve being partially spared. The lesions consisted of round achromic patches of two to three centimeters in diameter and accurately placed over the spinous processes. Over the spines of the scapulae, the right achromion, the collar line of the neck, the iliac spines, the epitrochlear processes, and over the femoral condyles were numular leucodermic areas. There was also one large achromic patch on the abdomen, on about the site underlying the belt buckle.

The patient was given treatments on June 3, 5, 13, 16, July 7, 14 and 21. At each sitting almost all of the areas received radiations. The first three sittings were given without compression and consisted of two-minute radiations to each achromic area. On June 16 most of the leucodermic areas contained some areas of new pigment. The latter were irregularly arranged as islets (macules) of one millimeter or less in diameter. They were partly but not entirely follicular in distribution. On June 16, July 7, 14 and 21, the patient received blis-

tering doses of the light. The latter were produced by three-minute exposures during which the quartz window of the lamp was gently pressed against the skin. As a result of these blistering doses there was produced a degree of pigmentation that was quite satisfactory to the patient. The pigmentation was not, however, on close inspection, quite as evenly distributed as in the normal skin. The slight irregularity was as much due to a slight hyperpigmentation as to underpigmentation. However, when the treated areas were seen at a little distance the slight irregularity of pigmentation could not be noticed, so that the cosmetic effect for all practical purposes was entirely satisfactory.

4500 Olive St.

BIBLIOGRAPHY

1. Montgomery, D. W.: *J. Cut. Dis.*, 22:17, 1904.
2. Buschke, W.: *Med. Klinik*, 3:983-984, 1907.
3. Moser, E.: *Med. Klinik*, 3:1363, 1907.
4. Buschke and Mulzer, *Berl. klin. Woch.*, 1575-1576, 1907.
5. Carpenter, L.: *Lancet-Clinic*, N. S., 58:379, 1907.
6. Ehrmann, S.: *Arch. f. Derm. u. Syph.*, 91, 1908.
7. Stein: *Arch. f. Derm. u. Syph.*, 97:163, 1909. *Abst. in Brit. J. Derm.*, 22:102.
8. Pringle and McDonagh in Allbutt and Rolleston's *System of Medicine*, Vol. 9, p. 563, 1911.
9. Jones, K. H.: *Brit. Med. J.*, 2:1652, 1911.
10. MacKee and Wise: *J. Cut. Dis.*, 32:238, 1914.
11. Ormsby, O. S.: *Treatise on Diseases of the Skin*, p. 589, 1915.
12. Buschke, A.: *Dermat. Woch.*, 60:489-493.
13. King and Parker quoted in Sutton, R.: *Diseases of the Skin*, p. 438, 1916.
14. Bloch: *Arch. f. Derm. u. Syph.*, 124, No. 2, 1917.
15. Lutz: *Arch. f. Derm. u. Syph.*, 124, No. 2, 1917. *Abst. in Brit. J. Derm. and Syph.*, 30:1-7.
16. With, C.: *Brit. J. Derm. and Syph.*, 32:145-155, 1920.
17. King, J. C. E.: (Personal letter of February 24, 1922.)

See also:

18. Torraca, L.: *Intern. Monat. f. Anat. u. Physiol.*, 31:426-436, 1915.
19. Kismeyer, A.: *Brit. J. Derm. and Syph.*, 32:156-162, 1920.

The following treatises give extensive discussions on ultra-violet therapy in skin diseases, but do not mention the use of the ultra-violet rays in pigment atrophies: Morris and Dore, *Light and X-Ray Treatment of Skin Diseases*, London, 1907; Ehrmann, *Die Anwendung der Elektrizität in der Dermatologie*, Wien, 1908; Ullmann, *Physikalische Therapie der Hautkrankheiten*, Stuttgart, 1908; Gilbert and Carnot, *Bibliotheca de therapeutica*, Vol. 5, Roentgentherapie, Radiumtherapie, Fototherapie, Barcellona.

CONGENITAL DEFECT OF THE ANTERIOR ABDOMINAL WALL AND CRYPTORCHISM.

Report of a Case.

JOHN G. SHELDON, M.D. and EDWARD P.

HELLER, M.D.

KANSAS CITY, MO.

Cases of this kind are not common, but it is difficult to believe that the condition occurs as seldom as do reports of such cases. According to Bottomley¹ only eight cases are recorded in the literature up to 1916. A recent survey of the literature fails to disclose any reports of congenital defects of the abdominal wall more recent than Levy's² review in 1908, although there are many references to congenital absence and anomalies of other groups of muscles, a surprising number of them being of the cervical and pectoral regions. The occurrence of bilateral cryptorchism in this case with a

partial relief of the condition by operation adds interest to the report.

REPORT OF CASE

V. P. H., No. 304. H. F., age 24, Jewish, clerk.

Chief Complaint.—Swelling of right abdomen, tenderness in left groin, and testicles not in scrotum.

History of Present Illness.—Was born with undescended testicles and ever since he can remember has had bulging of right lower abdomen. Is very conscious of the prominence and will not go about without his jacket, even in the warmest weather. Is very constipated, at times taking two physicks a

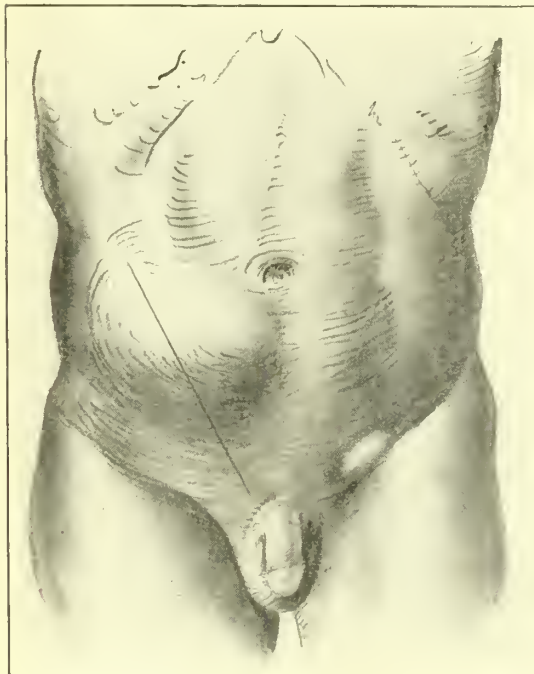


Fig. 1. Shows position and approximate size of the bulge, the line of incision, the left testicle in the left inguinal canal, and the small penis and empty scrotum.

day. General health fairly good; no respiratory, cardiovascular or nervous symptoms. Has occasionally had intercourse but not very successful. Very rarely has a slight erection.

Previous History.—Usual diseases of childhood; slight backwardness in development.

Family History.—Negative.

Social History.—Leads a very sedentary life which he thinks is responsible for his constipation.

Physical Examination.—Robust appearing, acne complexioned young adult male. Head, neck and chest not surgically remarkable. Abdominal wall fairly muscular, with a distinct prominence in the right lower quadrant, ovoid in shape, and approximately 12 centimeters in the long diameter. Right testicle could not be palpated in the scrotum nor in the inguinal canal. The left testicle could be easily palpated in the middle third of the left inguinal canal (Fig. 1). Extremities negative. There was some tenderness over the left inguinal canal and over McBurney's point.

OPERATION

It was decided to repair the muscular defect, and, if possible locate and bring down the right testicle at the first operation, leaving the simpler procedure

of bringing down the left testis for a subsequent operation; or possibly doing so at the same operation in the event that the right testis could not be located.

An oblique incision in the direction of the fibres of the external oblique muscle about 12 centimeters long was made over the prominence in the right lower abdominal quadrant (Fig. 1). The attenuated fibres of the external oblique were incised the length of the incision and down into the inguinal canal and retracted. No evidence of the testis was found in the canal. The right rectus muscle, the conjoined tendon, and the fibres of the internal oblique were all found to be attenuated, thus permitting the bulge (in contra-distinction to a diastasis). The peritoneal cavity was entered at the upper angle of the wound and the incision gradually enlarged downward. The cecum and ascending colon were found relatively high, were considerably distended, and had flabby, atonic walls. The appendix was chronically diseased and was removed in the customary manner. On palpating in the retroperitoneal structures behind the cecum, an olive-shaped mass was found which on being freed was shown to be an atrophic testicle in its prenatal, partially descended position. By dividing all the structures, except the artery of the vas and the vas deferens, it was possible to bring the organ into the upper part of the scrotum. The inguinal canal was closed as in the Ferguson operation and the muscles of the right lower abdomen were overlapped and sutured as shown in Fig. 2. On account of the considerable dissection in the pelvis, a rubber drain was inserted to care for the secretions of the first few days. The wound was then closed to drainage. Progress was uneventful except for the anticipated drainage from the tube and from the aperture left after its removal. This was never abundant and was of a mucopurulent character.

As the operation had consumed nearly three-quarters of an hour, and as a good part of the work had been completed, it was decided to leave the operation on the left testis for a future date. When seen four months after operation the patient was feeling well, the muscular defect was not to be found, and the testis was in the position in which it had been placed.

COMMENT

Two of the eight cases reviewed by Levy were in the aged while the remainder were in very young children. In the case which came under Levy's observation, a strangulation of the gut which protruded into the pseudo-hernia took place. This accident must necessarily be rare since no real sac or ring is present. Although the treatment as usually employed seems to be some form of mechanical support, the present case illustrates the feasibility if not the advisability of operation. It is certainly justifiable in the presence of the complication herewith recorded. It will be noted that there is a distinct difference between a diastasis, where usually there is a breach in the aponeurosis, and a congenital muscular defect, in which latter condition there has been a failure of complete development of several muscle planes over a particular area, the muscle fibres and aponeurosis sharing equally in the attenuation.

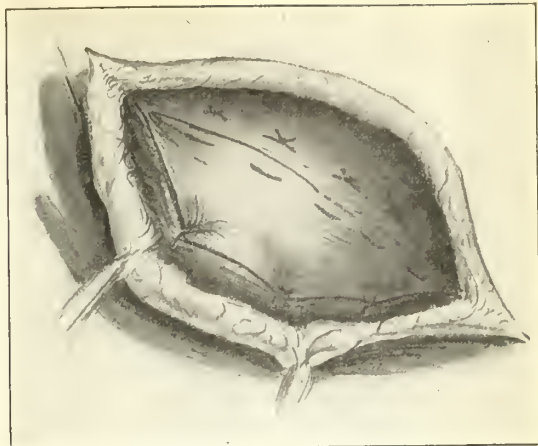
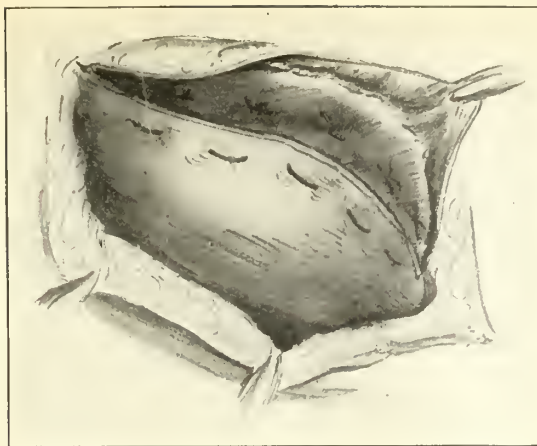


Fig. 2. Shows method of overlapping the attenuated fibres of the external oblique, a similar method having been employed to overlap and strengthen the deeper structures.

(We are indebted to Mrs. E. P. Heller for the illustrations.)

25th and Locust.

REFERENCES

1. Bottomley: Keen's Surgery, Vol. VI, CXXI, p. 450, 1916.
2. Levy: Beit. z. klin. Chir., 1908, LVII, 201 (Bibliography). (Quoted by Bottomley.)

MENTAL DISORDER AS A FACTOR IN THE HIGH COST OF LIVING*

FRANCIS M. BARNES, JR., M.D.

ST. LOUIS

That branch of medicine of which I will speak to you for a few minutes, Neurology and Psychiatry, or Neuropsychiatry, as it is more technically known, deals with the study, prevention and treatment of disorders of the nervous system, both nervous and mental diseases. Within comparatively recent years the interest of the public in nervous and mental disorders has increased enormously. This is due to the fact that the mass of information which we now possess concerning this variety of the afflictions of mankind has multiplied many fold; so much so that it will be quite impossible to tell you on this occasion of more than but a few of the larger and more important phases of the subject.

In the first place, let us consider what nervous and mental disease means in terms of dollars and cents to this country and, therefore, what it means to you as a taxpayer. Disorder of the nervous system is the cause of a larger proportion of illness and its resulting disability than is generally appreciated. You all are to a degree familiar with

the existence of those large institutions, usually maintained by the state, formerly known as asylums for the insane, but now converted along the lines of modern medical thought into hospitals, wherein are housed thousands of individuals because of mental disease—insanity. You probably do not know that it takes more hospital beds to care for these insane than it does for all other forms of illness combined. Our care of the insane in the hospitals though fairly well developed is as yet inadequate. But insanity is only one of many varieties of nervous and mental disorder. These hospitals take care of but a part of the dependency created by mental disorder. There is in addition to this almost an equal number of persons incapacitated by defective mental development—feeble-mindedness in its various degrees. This larger group is very inadequately provided with hospital facilities and must live and be cared for as best may be in the community at large. In addition to these two generally recognized types there are uncounted numbers of other individuals who, though not insane or feeble-minded, are nevertheless mentally abnormal in varying degree and kind for longer or shorter periods of their lives. A negligibly small proportion of these are cared for in hospitals or otherwise. They are all woven thickly throughout our social fabric and crop out all too frequently as imperfections in our community existence.

Suppose we look upon mind as that mechanism by which one fits into the environment or circumstances under which he lives. Then you will see that nervous and mental disorders take on a much larger importance in our social existence. The individual so afflicted becomes a menace to the proper and efficient working of society. Provision must be made to care for them when, because of their men-

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tal disorder, they run counter to social customs. We must then think of psychiatry as applied to our social problems because without an adequately scientific psychiatric evaluation of the individual with mental disorder it is manifestly impossible to apply satisfactorily the treatment for the social difficulty which arises from such disease of the mind.

Let us stop to think at just what points of our social scheme we meet most strikingly with conflicts resulting from nervous and mental disorders. Also, let us consider at the same time how this affects you as a taxpayer.

War has always acted to increase the amount of nervous and mental disease in the country at war. To this our late World War has been no exception. There were discharged from military service during the war over 100,000 men with disabilities of neuro-psychiatric character. Our federal government has enacted legislation providing ways and means for caring for the disabled ex-service man and has created the U. S. Veterans' Bureau to carry out this purpose. Of the total number of men now cared for by this Bureau, the number now being up into the hundreds of thousands, fully one-third are disabled because of a nervous or mental disorder. The federal government is spending millions of dollars of your money each month of the year to carry on with this work and it is estimated that the job will remain large for at least five more years. Nor is this actual outlay of money the total cost, for it does not take into consideration the economic loss to the country resulting from the inability of these mentally sick men to carry on for themselves in some self-sustaining work.

You may learn this same lesson, though in smaller figures and in less striking degree, by a little study of your own community. Stop to consider for a moment the number of persons who are cared for from the public funds, your funds, in your state hospitals for the insane. You will have some comparative idea of this in dollars and cents when I tell you that in New York State alone in one year the money spent for this item equalled that spent in ten years to build the Panama Canal. This, mind you, is for those in the hospitals for the insane.

What now about that larger group not disordered in mind to such an extent but that they continue to live in the community? Where do we meet with these persons? Go first to your school system, especially that of the city. What provisions do you find for backward and defective children? Special schools, special equipment and special teachers. And remember in one way or another your tax money pays for all of this. Go a step further in the growth of youth and consider

your reformatories and special institutions for delinquent children. And it is now well shown and proven that delinquency and crime grow in the vast majority of instances upon soil made fertile by mental disorder or defect. Over 50 per cent. of offenders coming before our juvenile courts are suffering from some abnormal nervous or mental condition. When you are told that more than half of the population of your penal institutions exists because of some form of mental disorder you have added another large group of dependents who must be cared for in specially adapted institutions because of their menace to society. And remember that out of the revenue derived from public sources, taxes, comes the funds to pay for the care and maintenance of all of these agents of society.

And we may go still further to find evidences of this maladaptation to the ways of society brought about by mental disorder. Did you ever stop to think of the money being spent daily to support and operate the almost innumerable charity and welfare organizations which now serve virtually every village in the Union?

And so we may go on multiplying these evidences of the vast importance of mental health to an efficient social existence. This is not necessary. You will already know that nervous and mental disorder producing poor adaptation to environment and the consequent conflicts with social custom with the resulting dependency crop out at every angle of our daily existence. You will realize, too, that when the neuropsychiatric disorder has been allowed to progress to the stage where it has, so to speak, become fixed and the damage has been done, then the person so afflicted has become dependent. By so much the more that the disease has progressed by so much the less will treatment be effective. The time for the greatest benefit is before the disease has developed and grown to its stage of fixation.

As in all branches of medicine nowadays, so in neuropsychiatry, it is prevention and not cure which is the watchword. And what do we mean by prevention as applied to nervous and mental diseases? How may we attempt to accomplish it? All are nowadays more or less familiar with the terms "sanitation and public hygiene." These subjects are taught in the earlier years of our school career. You all know that in the presence of certain contagious diseases, such as smallpox, certain sanitary restrictions, quarantine and vaccination are compulsory to prevent the spread of the disease. To keep up a condition of physical health and prevent disease you all know that clean, nourishing food and drink, bodily cleanliness, exercise and rest are primary

necessities. Without a healthy body a healthy mind cannot exist. Therefore, these requisites of bodily health are necessary to mental health. They are then the basis of mental hygiene. But mental hygiene implies more than this, its fundamentals are a healthy manner of thinking, feeling and acting. Proper action depends upon the thinking and feeling of which it is the result and therefore mental hygiene strives for a balance of intellect and emotions. The feeble-minded person acts according to his emotions, the way he feels, whereas the normal individual acts in accordance with his intellect, with reason and thought.

The prevention of mental and nervous disorders is the measure of effective mental hygiene. Therefore, whatever of preventive and corrective means we may have must for the greatest success be applied at the source of the trouble. Heredity and environment are the two most important factors in the causation of nervous and mental disorders. Hereditary we can only attack by working upon those who are to become the parents of the future. So far eugenics though theoretically it may appear desirable, has not practically given much aid. Environment can be altered more directly and immediately. Where then and how may we apply our principles of mental hygiene to the greatest advantage? It is obvious in the first place that the greatest good is to be derived from any endeavor along these lines through a process of education. When those of a community who are capable and responsible come to know the menace and danger to the social welfare which arises on the basis of mental and nervous disorder, when in other words these leaders in the community are educated, then the principal difficulty in the application of mental hygiene from a practical standpoint is overcome.

Inasmuch as the best results from any educational or training process are to be obtained when such training is begun in the earlier years it is obvious that our first point of attack would be in our schools. There should be as a part of each school system, an adequately trained neuropsychiatric unit in order that mentally backward and feeble-minded children as well as those who are otherwise abnormally different from the usual may be recognized at the earliest possible moment. In this way their shortcomings and incapacity from mental causes will be recognized at such an early date that there may reasonably be greater hope for directing their energies along such lines and in such pursuits that will furnish for them normal outlet for their desires and inclinations and thereby prevent the development of anti-social and otherwise criminal tendencies which we are accustomed to

meet with in the later life of these individuals. It should be held in view also that by such a neuropsychiatric unit properly functioning in our schools, we may not only pick out those who are mentally intellectually below par, but we may by the same unit discover others who are above par and who may be sent along faster and into lines of endeavor in which their particular type of ability will find a broader opportunity of expression. Our special schools now in existence should be carefully gone through and a more satisfactory segregation of pupils according to their mental level made. It is no uncommon thing on entering one of these schools to find the teacher devoting practically her entire time in a vain endeavor to handle one pupil who by proper examination and mental evaluation it could be easily shown is incapable of taking in a sort of instruction which is attempted. This sort of thing interferes with the chances of other pupils who might profit had they the opportunity.

A similar neuropsychiatric unit should function in our juvenile courts and as well in other courts. Inasmuch as there is much merit in getting a proper start, the unit in the juvenile court is the more important because it will help to catch the first offender before he has through repeated conflicts with society, with law, become a chronic anti-social part of our community. In the higher courts, speaking from the age point, hopes of reform, or more accurately we might say, hopes of recovery through treatment, have become more remote and the function primarily of this neuropsychiatric unit would be to give an adequate estimate of the offender's mental capacity and limitations in order that the process of law might be carried out and justice administered within the understanding of the offender. The uselessness of administering punishment through law to an adult individual who has but the mental age of a child is apparent to anyone who gives the matter a moment's thought. Our penal institutions should include among their official staff, as is now done in some places, competent neuropsychiatrists, not only for the purpose of assisting in the management of the prisoner, but also from the opportunity of studying the prisoner at this stage to endeavor to learn some of the steps in the process of his growth and development which led to his present difficulty and, thereby, knowing these, seek to prevent their repetition in younger individuals apparently beginning to follow the same trend.

Our large institutions, hospitals for the insane, should act as sources of information and instruction for the community surrounding them. They should have connected with them out-patient clinics where indicated treatment

and proper guidance might be made easily available for individuals who are not needing hospital care or who have passed through that stage and have returned again to their community. Welfare organizations should have adequate and competent neuropsychiatric advisement and guidance and should work in close harmony with neuropsychiatric hospitals in their community in order that the quickest and fullest results may be rendered to the individual in need.

910 University Club Building.

SOME OBSERVATIONS IN THE PROSTATIC URETHRA*

C. H. SUDDARTH, M.D.

EXCELSIOR SPRINGS, MO.

This is a subject of great interest to me, and all mankind because upon the propagation of man future generations are dependent, and health is a prerequisite to propagation. I therefore call your attention to some observations in the prostatic urethra. About four years ago, after examining several prostates and prostatic urethras, it occurred to me that where but one side was infected it was, in a majority of the cases, the left side. So I asked myself the question than that I now ask you. Why is the left prostate, left seminal vesicle, and the left epididymis infected oftener than the right? Since then I have examined something over three hundred prostates and it has been my observation that of the infections 80 per cent. are on the left side. Four of them were abscessed, three on the left side and one on the right. One ruptured into the rectum, two into the urethra, and the fourth I opened into the prostatic urethra. During this time I have not seen an epididymitis on the right side. In looking for a cause of this unique condition I have reviewed several authorities on anatomy, and if there is an anatomical difference of the right and left sides of the prostate and seminal vesicles that could be the cause of this condition I have failed to find it, or the anatomist has failed to detect it, unless it be from some of the following anatomical conditions: The veins from the left side of the pelvis in their course to unite with the opposite side lie beneath, and are crossed by, the artery from the right side; they have no valves and the pressure from an over-distended rectum and sigmoid would retard the return circulation from an inflamed and congested prostate; from its close proximity to the rectum; the absorption of colon bacilli; an anastomosis

of the spermatic and middle hemorrhoidal veins with the prostatic plexus.

The prostatic urethra is surrounded throughout its entire course by the prostate gland and is from 2.4 to 3 cm. in length. The first portion, from the vesicle sphincter to the opening of the ejaculatory ducts that are formed by the union of the vas deferens with the seminal vesicles on each side and open either in the verumontanum or in a groove on each side of it, is ural. From the opening of the ejaculatory ducts to the membranous portion is urogenital. The prostatic urethra contains many glands and ducts; the glands of Littre with their numerous small openings are found in a linear series around the prostatic urethra.

The prostate gland consists of glandular substances surrounded by a plexus of blood vessels that is held together by connective tissue; it consists of ten to thirty distinct tubular systems about 1 cm. in length that open in the floor of the urethra in symmetrically arranged lines that branch and rebranch throughout their entire course. They are wavy, saccular, and have tubal diverticula, simple and compound. But no more so on the left than the right side.

C. Riddle says (*Anatomical Record*, Vol. 11, 1916 and 1917, p. 87), on size and length relations of the right and left testes of pigeons in health and disease, that he has examined a large series of testes and found the left thinner and more elongated, the right shorter and heavier. "This difference in form is perhaps not without interest since the only persistent gonad in the female—that in the left side—is characteristically thin and long. The testes that develops on this side is similarly characterized as compared with its mate of the right side."

In hybrids, the greater proportion of larger left testes is found in the group most widely separated from a pure species (generic hybrids).

The right testes of the pigeon is normally larger than the left. Great reduction in size seems to be caused by tuberculosis, especially in the right gland.

Reviewer's notes of W. F. Prior and Company says:

"Despite a fair knowledge of the literature of urology in general, and a thorough study for suggestive titles with an additional review of all available texts and monographs in genito-urinary surgery, no information has appeared which can lead to the answer of the query, why the left prostate and seminal vesicles and left epididymis are more frequently affected than the right?"

"Except for the peculiar circumstances that the vein from the left orchid enters the renal vein at a right angle, and that this is sup-

*Read before the Clay County Medical Society, October, 1921.

posed to retard the blood return from that side and cause the left scrotal half to look lower than the right in otherwise normal people, nothing suggests itself anatomically.

"It may be conceived, as far as the epididymis is concerned, that its return flow of blood being likewise retarded predisposes it to disease as compared to the right side. By continuity, one might conceive, although it is stretching the imagination a little, that the same factors would operate for the left seminal vesicle and possibly for the prostate.

"The figures are not given in the texts of comparison between left and right sides, and the inquirer may have struck on a new feature."

It is easy to see how an infected prostate or seminal vesicle continually resists our persistent efforts when we think of the numerous small ducts with their tortuous tubules that so easily become occluded from inflammation, due to the infection, and inspissated secretions, that have been known to harbor gonococci for ten years, appear as a new infection after some dissipation or relations with an absolutely clean woman.

Acknowledging all of this to be true, yet it does not give any light as to why the left prostate and left seminal vesicle are infected in 80 per cent. of the cases. With the epididymis there are many anatomical reasons for the greater frequency of infection on the left side when 90 per cent. of varicocele are on the left side. The anatomical reasons are:

(1) Veins on the left side are much larger than on the right.

(2) The left testicle hangs lower than the right so that the column of blood in the left vein is longer.

(3) The left spermatic vein empties into the left renal vein at right angles whereas the right spermatic vein empties into vena cava at an acute angle.

(4) The left spermatic vein running behind the sigmoid flexure of the colon is continually subjected to pressure from the accumulation of feces.

(5) The left spermatic vein is destitute of valves at its opening into the renal vein. The last three, which may be included as a possible cause of the frequency of the infection of the left prostate and seminal vesicle, although to the student of anatomy and pathology this would in no wise satisfy him as to the real cause.

203 S. Main St.

REFERENCES

- W. F. Prior Company, Publishers.
Piersol's Anatomy.
Gray's Anatomy.
Morris' Anatomy.
White and Martin: Genito-Urinary Diseases.
Luy-Wolbrast: Cystoscopy.
Koll: Diseases of the Urethra.
Tice's Practice of Medicine, Vol. III.

THREE CASES OF FOREIGN BODY IN THE BLADDER

J. E. DEWEY, M.D.

SPRINGFIELD, MO.

The following cases of foreign body in the bladder are interesting as showing the variety of substances which may be found by the cystoscopist:

CASE 1. Female, age 14. Hairpin in bladder. Had been in the bladder only a few hours. This was readily seen and removed through urethroscopic tube and only slight inflammation of the bladder being present recovery was without incident.

CASE 2. Male, age 14. Six-penny nail in bladder. Readily seen with cystoscope and removed through cystoscope after considerable manipulation. General anesthesia employed in this case and patient retained in the hospital for a few days as a slight amount of cystitis was present.

CASE 3. Female, age 20. Pipe stem in bladder. This could be readily seen and grasped with alligator forceps but was so tightly wedged in the bladder that a cystotomy was necessary and breaking of the stem before it could be removed.

Cases 1 and 2 were referred by Dr. Wallis Smith; case 3 by Dr. Wilbur Smith, of Springfield, Mo.

Woodruff Building.

IMPERFORATE URINARY MEATUS

EDGAR E. WHITESIDE, M.D.

ELVINS, MO.

On September 12, 1921, I was called to attend in parturition Mrs. B., aged 21, a primipara; a baby boy was delivered. The next morning visiting the case, as is my custom, I was told that the baby had not micturated. Examining the penis, I found an imperforate urinary meatus. The grandmothers of the neighborhood, with great solicitude for the infant had already drenched the helpless baby with watermelon tea, thus increasing the child's restlessness and pain.

I operated at once, making an incision from one-eighth to one-fourth inch, when grandmother's watermelon tea spurted clear across the room. I will not relate the observations of the ladies as to the cause of the "birth-mark." The child otherwise was normal in every respect.

CHRONIC SCLEROSING OSTEOMYELITIS.—Arthur D. Kurtz, Philadelphia (*Journal A. M. A.*, Feb. 4, 1922), reports a case of sclerosing osteomyelitis. There had been no trauma, but there was a history of many acute infections and one site of focal infection. The marrow cavity was completely obliterated except for a negligible area.

SPECIAL ARTICLE

THE A B C MOVEMENT FOR HOSPITALIZATION IN THE COUNTIES OF MISSOURI

FRANK G. NIFONG, M.D.

COLUMBIA, MO.

To report properly the modern rural hospital movement one must necessarily call attention to some of the problems to be solved in rendering medical service to the country people.

The writer has had the privilege of practicing medicine about an equal length of time in one of the larger cities and in a rural community. This has given him a dual point of view and a more correct appreciation of conditions to be met in both city and country.

doctors of the old school, with their ideals and altruistic service, modified only by a better medical education and improved opportunities to make use of the latest and best diagnostic and therapeutic aids. Doctors who serve in the country should be provided with improved equipment and better facilities.

The Need for Country Hospitals

The need for hospital service in the country has further been impressed upon the writer because we have here in Columbia a small hospital administered by the University of Missouri. This hospital is open to the citizens of Boone County, and it is rather conservative to estimate that through its service twenty-five or thirty lives are saved in the county yearly in emergency surgical cases alone. The



Audrain County General Hospital, Mexico, Mo.

In considering the two, a contrast forcibly impressed upon him is the great handicap under which the country doctor renders medical service to country people, whether they be rich or poor. Our city folk are now supplied with the most modern hospital facilities for all classes, aided by group practice and apparently the ultimate in diagnostic facilities. In the country we have noble service but inadequate equipment and often poor facilities. We still have a few left of the old-time general practitioners. (God bless them!) These are the men who are giving more real service in proportion to their opportunities than all the other groups combined, and it is devoutly to be wished that they may be kept in service for a long time to come. The best thing that could come to our country people (and to most of our city folk, too, for they come chiefly from the country) would be a new supply of these

rich and poor alike have needed this service. It is as essential that the wealthy citizen, if his life is to be saved, receive immediate hospital service as it is for the pauper, and there is no time to send to the city for a surgeon in emergencies. In this way the hospital need here has been emphasized and it has made the way easier for the people to tax themselves for hospital purposes.

We know that our country people, those who produce our food, are the very foundation of our society and of our national existence. Anything we may do to make life more tolerable and more pleasant in the country goes far toward solving a great national problem. It is useless to cry "back to the farm." We must give the workers on farms equal advantage with the people in cities. We must give them good schools, good roads, and equally good hospitals and medical service.

State Medicine and Socialistic Schemes

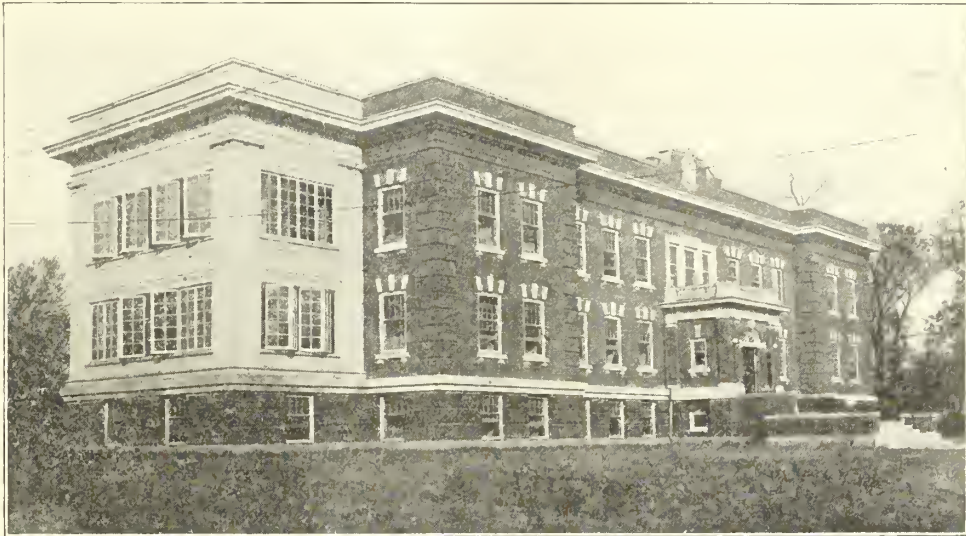
Tendencies toward "state medicine" and socialistic schemes are showing themselves, and even now a note of warning is sounded in our national and state medical organizations. Nothing could be more disastrous than that form of state medical service which attempts to give aid to the individual patient through the state-hired doctor. The English "panel" game is abominable and would be worse if applied to our country.

But what are we to do? Modern scientific medicine is too intricate and too vast for either the country or the city doctor to compass it entirely. We must have team work. We must have our medical centers and our laboratories and all our work collaborated. Where may the country doctor get help, especially for his sick poor? The state must help him. It is

and noble profession than one which destroys all individuality, ambition and incentive to work. The state provides for the welfare of the people by giving us good health laws and good boards of health and by fostering medical education; she should still further assist by giving us a comprehensive system of hospitalization, with laboratory and diagnostic assistance for the country doctors.

Duty of the State to Its Sick Poor

Not only should the state care for its mental sick in psychopathic hospitals, but for all other derelicts in a state general hospital. By a comprehensive system of hospitalization, a state general hospital, articulating with county and community hospitals, might well care for the sick poor of the state, as the poor of our better and larger cities are cared for. These poor people of the country must have this



Callaway County General Hospital, Fulton, Mo.

state aid to the individual, isolated practitioner which must be furnished. The state should not attempt to treat its poor by paid agents; it should give aid to individual doctors with laboratory and like assistance. It is the state's business, and good business, too, to care for all its derelicts, whether mental or physical. Our good State of Missouri has as her motto, "The welfare of the people is the supreme law." Welfare might reasonably be made synonymous with health, and the "health of the people" be made our supreme law. But the health of the people is not to be conserved by some abominable, socialistic scheme whereby medical service might be rendered by hired doctors apportioned to the poor of certain districts. The state must leave the medical man free to work unhampered. No scheme could more quickly destroy our most altruistic

care, for they are as worthy and as important a part of our population as the city poor. It is a matter of justice and right, and it is a matter of extreme importance if we wish to keep our country people on the farms to produce our foods. We should have a state general hospital to which any indigent individual of the state may be sent for rehabilitation. We should have a state hospital with which may be articulated the county general hospitals. By this means we may have a great, co-ordinated system of hospital service over the entire state. We may standardize these articulated hospitals to certain grades of efficiency for the privilege of articulation and of being accredited. The state hospital might well become the supreme court in medicine, and to this court the isolated country doctor might bring his difficult cases and receive the

utmost benefit both for himself and his patient. This, then, should be our objective: a state and county hospital system which would give our poor as well as our rich people in the country, hospital advantages equal to those in cities.

Country People Need Modern Hospital

We must have as good medical service in the country as in the cities. How may we get it? The modern hospital must be given to the people in the country; otherwise it is impossible.

No one factor in modern scientific medicine is of greater importance and value than hospital service. It is the greatest aid, and it is essential in giving scientific, medical service. If it is the duty of the state and county units to care for the sick by making it possible for the medical profession to render the best and most scientific service possible, it is their duty to build, equip and maintain modern hospitals.

The importance of hospitalization and the great need for country hospitals is becoming increasingly evident. Note the recent prominence and the accented importance of the small community hospital. The people and the profession are awakening both to the possibilities and to the need of such service. The service which this class of hospitals can perform is of equal value to that of the metropolitan hospitals and may ultimately be of as great volume. The time will come soon when communities and counties will support hospitals unquestioningly and will submit to taxation for their support as they do for schools and roads.

The Limitations of Small Hospitals

We have listened on occasions to discussions on hospital administration and on what is necessary in staff work and nursing before an institution is worthy the name of hospital. We have also heard the small hospital anatomized and condemned most indiscriminately. We are fully aware of the deficiencies of small institutions and of certain limitations which they must have. The fact that these institutions have limitations and deficiencies, and some of them abuses, and the additional fact that they are increasing rapidly in response to a real need, makes it all the more important that hospital administrators give thought to their organization and lend all the aid possible in standardizing them and

bringing them up to the highest possible level of efficiency.

These, then, are some of the reasons for this communication, a preliminary report, it may be called, on this new county hospital project in Missouri. We are, of course, in the experimental stage, a laboratory experiment in hospitalizing it may be called. We hope to benefit other communities and countries by our failures as well as by our successes. We are pioneering.

Boone County Conditions

We have in Boone County a population of more than 30,000; Columbia, a town of about 12,000, has a student population during the season of about 5,000. We felt the need of hospital service for the rural population particularly; for, as explained before, the University of Missouri has only a small hospital serving the students and some of the citizens, and this situation simply accentuated our needs. How might we get a hospital? In 1916 we saw in *The Modern Hospital* a notice of a county hospital law in Iowa and Indiana. We secured the Iowa statute and had it introduced, slightly modified, in our legis-



Boone County General Hospital, Columbia, Mo.

lature, and it became our law in 1917. This law provides that any county may vote bonds and a tax for the erection and maintenance of a county hospital. A petition with 200 names subscribed, one-half in the county and the other half in the town in which the hospital is to be erected, is presented to the county court and the court calls an election. Our constitution makes it necessary that a two-thirds majority be obtained for the measure to carry. The first trustees are appointed by the court and afterwards elected at regular elections, two and three alternately. Trustees serve without pay and are nonpartisan. The law gives the trustees absolute management, and they may make any rules they see fit to ad-

or \$1.25 per thousand, which, you will observe, is not heavy. We now have three beautiful hospitals in the three adjoining counties of Audrain, Boone and Callaway, and we are pleased to call this the A B C movement for county hospitalization. We are the pioneers in this state in this movement, and therefore regard it as an important experiment.

Now, as to our own Boone County Hospital. Our buildings were completed and the house was opened December 15, 1921. In the first five months of service we had received 275 patients. We employ all graduate nurses. We have a superior culinary service. We have an X-ray department doing daily service for house patients as well as for outside patients.

We have a laboratory which does all the fundamental work, and this is supplemented by having the Wassermanns and the pathological sections done by the medical departments of the University of Missouri. This hospital is by law an "open hospital," and all legal practitioners have entree.

Many dangers might be pointed out



Corner of Lobby, Boone County Hospital.

minister the institution. All legal practitioners of medicine may practice in the hospital, so long as they obey the rules laid down by the trustees. The trustees may exclude any patient or any physician for infraction of rules. A separate tuberculosis hospital may be built and administered by this board. The county court may apply five per cent. of the revenue of the county for maintenance if it sees fit. A training school for nurses may be established. This, briefly, is the law.

Immediately after the war we felt more than ever our great need for such a hospital. The neighboring counties of Audrain and Callaway first voted and found they had not asked enough to erect what they needed. They immediately voted for more money and received it. Boone County came next and made the same mistake, for building prices were at the peak. We asked for \$100,000, got our estimates, and found we needed more. We then asked for an additional \$75,000 and received it, when we let contracts for our plant. The assessment now is one and one-fourth mill,

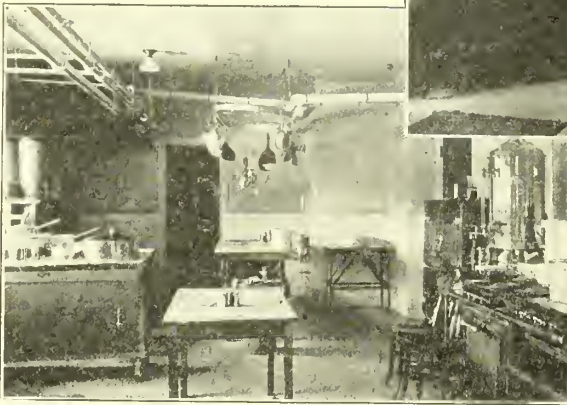


The Solarium at Boone County Hospital.

which might easily arise: petty politics and lack of vision, inefficiency in management, and such things. It is extremely important that boards of trustees be men of character and capacity. Our counties have been extremely fortunate in having men, appointed by our courts, of high class and character. It has been very gratifying to medical men to see the interest and enthusiasm displayed by this board of trustees. We are convinced that, with a little care, we may always have men on these boards who will serve their people as disinterestedly as would a most ethical doctor. The selection of a superintendent is a difficult problem, and it gave our trustees more concern than anything else. We need more women nurses trained to administer small hospitals.

We were fortunate in securing a woman superintendent of unusual ability, one with the ideals and practical good sense that will go far to show the way and work out our problems in the most practical way. When we reflect that the superintendent of a hospital must deal with all kinds of doctors as well as with all classes of patients, we realize that he or she should be a master in diplomacy. If we add to this the management of a nursing staff of variable capacity, the employment of common help of all grades of efficiency, running what is at once a hotel of superior quality and a house, with all the technical service and appurtenances pertaining to a hospital added on, it can readily be seen that exceptional ability as well as remarkable stability are required.

A staff seemed to be a difficult problem in an open hospital. We realized that no hospital is really worthy the name without a good working staff. How might we have such a staff? We have undertaken to solve that most important problem through the machinery of regular organized medicine.

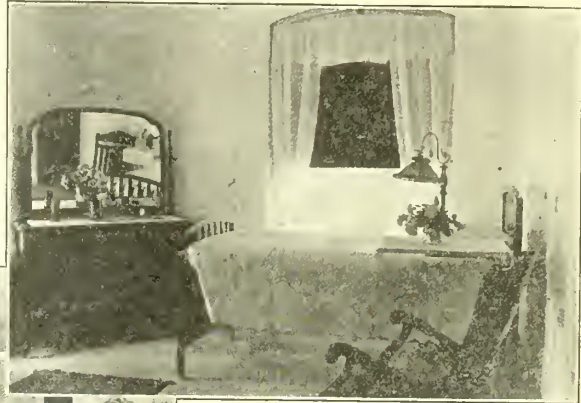


Boone County General Hospital Kitchen.

The Boone County Medical Society supplies the staff—a volunteer visiting staff. Individual members of the medical society have volunteered to the trustees to take over the various divisions of service, pledging themselves that they will care for all indigent patients or for all patients who may enter the hospital, and the hospital be paid for their service, whether by individuals, churches, lodges or the county court. They also pledge themselves to serve in the out-patient department when that may be established.

We have regularly organized with a chief of staff, vice chairman, secretary, advisory committee, etc. We have a quarterly alternating service in internal medicine, general surgery, obstetrics, pediatrics, genito-urinary and skin, gynecology, X-ray and laboratory; consultants

on pathology, physiology and X-ray. We have lectures on public health and preventive medicine and volunteer inspectors of public school children. The executive committee of the staff acts in an advisory capacity to the trustees and superintendent. The chief of staff is an ex-officio member. We hope to open our out-patient department very shortly in the several departments, and will thereby increase greatly our field of usefulness. Under this plan you will see that we are using regularly organized medical men as our working staff. We volunteer as a unit and exclude thereby irregular, inefficient service. We also assume the responsibility of giving the best service, and it is "up to" the County Medical Society to make good. Every member of the county



Patient's Room at Boone County Hospital.

society has equal opportunity; there is no discrimination. It promises to become a matter of the survival of the fittest, or at least of the "workingest." So far the arrangement has worked most beautifully, and all are entering into the work with great enthusiasm and vim. A higher standard is steadily being set, and improvement is noticed all along the line, even now. The more intimate association has increased good fellowship and understanding as well as mutual respect and good will. It looks like the objective through which good team work may be accomplished. We have staff meetings each month in which we review our cases and the work of the hospital. Anything for the good of the service is discussed. The monthly report is furnished from the office by the superintendent. Each death is particularly inquired into, and criticisms are both mercilessly and cordially made. We have a large room set aside on the fourth floor by our trustees for staff meetings and for the meetings of the county society. Here also may be held other meetings having a health service side to them, such as mothers' clubs, inspecting and teaching school children and

similar work. We are having installed a lantern and a moving picture machine which will help in our efforts to educate the children as well as ourselves.

We desire to make the Boone County Hospital function also as an educational force. We hope it may be a center from which will radiate every kind of activity which will promote health and well being. We feel that not the least important part to play is through an educational program. All our school children from the rural schools should be inspected here, and we hope to begin this inspection soon. While we have the children there we hope to teach them some of the elements of medicine and rules of good health. This is both easy and practical now, especially with the aid of visual education.

This, briefly, is some of our program and some of our problems. In time we contemplate having a nurses' training school, or perhaps a school for training nurses' assistants. At present we are using only graduate nurses. Our rates are exceedingly low, being from \$2.50 per diem for the county patient to \$6 for the choicest room and bath, such as one would have to pay \$10 or \$12 for in a choice metropolitan hospital. Most likely these rates may have to be revised upward, especially if the county cases are very numerous. The revenue from the mill tax amounts this year to nearly \$50,000. About \$16,000 must be used for sinking fund and interest. Thirty thousand dollars will be available for maintenance and building. It is to be hoped that this, added to the income from pay patients, will make it possible to "break even" at the end of the year. Our law makes provision for the acceptance of gifts; no doubt they will be needed; they will certainly always be welcome. It is the desire to give not only the best service possible, but to render it to all classes of people.

We are also thinking of the future and of our increasing population. Our grounds are close in town and are four acres in extent, allowing plenty of room for expansion. Our buildings are planned for expansion, so that when additional wings are built we may add seventy-five and again seventy-five beds, and ultimately have a 200-bed hospital. Also, we have room for a pavilion for infectious diseases, something much needed in a college town. An old residence on the property has been made into a nurses' home until such time as a modern one may be built.

In building and equipment up to this time, we have expended something like \$225,000.

Hospitals are somewhat costly, but the time has come when we must have them, even in the country. No investment pays bigger returns in health, welfare and happiness.—*The Modern Hospital.*

POSTURAL REST FOR PULMONARY TUBERCULOSIS.—Excellent results have been obtained by Gerald B. Webb, Alexius M. Forster and G. Burton Gilbert, Colorado Springs Colo. (*Journal A. M. A.*, March 26, 1921), in more than 200 patients with tuberculosis who were subjected to postural rest as a means of treatment. At the same time, so little attention has been given to the subject by those who specialize in pulmonary tuberculosis, that the authors feel warranted in again discussing this subject. The failures encountered have been in patients either too far advanced with bilateral disease, or in those considered favorable for the application of this procedure, but who failed to carry it out faithfully. Pulmonary tuberculosis is usually in the early phase a disease of the upper lobes, and the movement of these lobes is easily controlled by postural rest. As a matter of practical experience, it has not been noted that postural rest, with the preliminary increased excursion of the diaphragm, brings any disaster to patients when the disease has involved the lower lobe. Usually when such a phase of the disease is reached, pleural adhesions are likely to prevail, and these possibly modify the motion of the diaphragm. In the normal person there is little hyperemia of the dependent lung during sleep. In a tuberculous patient, a moderate degree of hyperemia is produced by prolonged rest on the affected side. Certainly such prolonged rest does naturally assist in the moving over of the heart and of the mediastinum to the side of the more diseased and dependent lung. In patients with much expectoration, a short time several times a day is allowed to be spent lying on the less affected lung. This accelerates drainage. The patient then turns on the side of the more diseased organ, beginning with only a few minutes, and gradually increasing the time until twenty hours or more a day are spent lying in this position. A small pillow is often placed under the ribs to increase the splinting effect. Results are obtained in a few weeks by the application of this thorough rest which are comparable to those obtained more quickly by artificial pneumothorax. Fever will subside, cough will cease, and sputum of many ounces may decrease to a mere trace. It has been of special interest to note the decrease and at times almost complete disappearance of rales. Many patients, considered as certainly requiring the application of artificial pneumothorax, have been restored to health by this simple procedure.

ANESTHESIA IN TREATMENT OF BOTULISM.—In the course of investigations designed to establish the path of absorption of botulinus toxin in guinea pigs, a number of animals were kept under ether for the purpose of surgical manipulation. It was observed by Jacques Bronfenbrenner and Harry Weiss, Boston (*Journal A. M. A.*, June 18, 1921) that death was greatly delayed in such animals following the introduction of large amounts of toxin. The question at once arose whether advantage could be taken of this delay in the rate of the progress of botulinus intoxication under ether anesthesia to permit toxin-antitoxin combination to take place. Various experiments were made and the correctness of the theory was established. In addition to this direct effect of anesthesia on the progress of intoxication, attention is called to two other beneficial factors. The patient throughout the progress of botulism remains conscious of his condition and apprehensive of its significance. Anesthesia for a time relieves this mental distress. Moreover, as the amount of toxin ingested is unknown, it is advisable to give very large doses of antitoxin intravenously. Etherization is known to counteract the tendency to anaphylactic shock.

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Missouri State Medical Association

DECEMBER, 1922.

EDITORIALS

DEATH OF DR. A. W. McALESTER

Dr. A. W. McAlester, of Columbia, beloved of every member of our Association, honored and revered by thousands of persons throughout the state, died at his home November 2 of acute dilatation of the heart, aged eighty-one years. He was on his way to Boston to receive the honorary degree of Fellow in the American College of Surgeons when he was seized by the illness which caused his death. We make this announcement so that all members may be informed of the loss we have sustained and of the bereavement that has come to his family. An extended account of his life will appear in a later issue.

NOSAER

We arrive at conclusions ordinarily by one of two methods. We reason from the general to the particular—the deductive method; or from the particular to the general—the inductive method. There are, however, two other ways of arriving at conclusions. The first consists in laying hold of perfectly good and virtuous facts and wantonly leading them astray. The second method differs from the foregoing in that the fair name of the facts is besmirched and their virtue questioned with the raising of an eyebrow or in the inflection of the voice. These two methods are not those of reason. They are the reverse of reason and we coin the new word “Nosaer,” derived from the Latin *nos* = us, and the Greek *aer* = to gas. The derivation has a slight spinal lesion in the region of the coccyx. The diphthong may be pronounced as *i* in the word idiot or as *e* in error.

Nosaer is, as we have stated, of two general types: the seductive and the traductive. If unintentional the seductive nosaer is commonly known under the name of “bone-head.” If intentional it is a more serious offense and the gravity thereof depends upon the number of facts seduced and the distance they are seemingly led astray from the straight and narrow path of reason.

The seductive nosaer of Voliva in declaring the world flat has not insofar as we are

aware resulted in the junking of any telescope mountings. The declaration caused little consternation and some laughter, and anything which will provoke mirth is not entirely without merit.

It is not often that seductive nosaer is carried to the refined point of a recent example furnished by the *Missouri News* which on the odd pages, oddly enough, is headed as “Straight, Clean, Forceful.” We quote:

“Since these ideas are absolutely contrary to the generally accepted theory of germs, let us consider a few facts to substantiate our claims.

“I. The rapid recovery of Chiropractic patients through the adjustment of K. P. and Sp. P. indicates that the bacteria have been aided in removing the poison from the body.

“II. If Leucocytes were live organisms, the spleen and lymph glands would hardly become enlarged or at least not inflamed during the time of excessive leucocyte development. But this enlargement and inflammation of these organs is easily explained when we consider that they are engorged with poison matter which must be worked over.

“III. When we consider germs as our friends and not our enemies, we can readily understand why we carry many so-called deadly germs in our bodies and still suffer no ill results.

“IV. Those organs in the body least able to resist the poisons in the blood are the first to become inflamed and congested. The cells of the different organs vary quite widely in their make-up and as Innate Intelligence creates the bacteria from the cells of the affected organ, we naturally have bacteria peculiar to that organ. This being true, especially with acute attacks, the Chiropractor is able to render wonderful service because he assists the congested organ of the body to reach normal. At the same time, by adjusting the Spleen place he helps that organ to convert the toxins into leucocytes which in turn may be devoured by bacteria, eliminated by the kidneys or converted into pus.

“V. Pus is composed of leucocytes. If leucocytes were living organisms, Innate Intelligence would hardly crowd millions of them into pus pockets. Being dead poison matter they are collected into these pockets to protect other parts of the body, as well as for elimination.

“The writer believes there is a wide field for study along these lines and expresses the hope that many Chiropractors will contribute their observations and experiences.”

We are not opposed to all of this. We are particularly strong for the last statement. We maintain that the whole is a good example

of inverted reasoning—a fine specimen of seductive nosaer. It is not O. K. It is K. O. just as it stands.

Traductive nosaer is of quite a different order. The seductive nosaer appeals more through the eye. It reads well. The traductive nosaer however draws into the sensory picture not only the eye and the ear but the nose as well. Traductive nosaer is not so clearly an inverted reason. It is a perverted reason which belongs clearly to the patho logic group. It has been held by some that perverted cerebral function is dependent at least to some extent on a defective endocrine apparatus. It is difficult to determine that traductive nosaer involves the cortex. In any event argument has been exhibited in astonishing doses without effect. Perhaps what we really need is glandular therapy.

The exponent of the traductive nosaer possesses personality. He mingles the smile of pity with the tears of dismay at the hopeless ignorance about him. He indulges in certain set phrases which are self-explanatory. "I affirm." "I make this statement without the slightest fear of contradiction on the part of anyone who really knows." "I realize this is a serious charge but." "I brand this document as a tissue of falsehood and misrepresentation." "I deny the germ theory of disease." "I do not like to prophesy but." "I challenge any medical man in this city to prove there is any disease germ or any basis for the germ theory of disease." "Every epidemic in England has started with a vaccinated person and the majority of sufferers have been those who were vaccinated."

He carefully explains how it is possible to juggle statistics to prevent the truth from coming to light. He shows how the heads of great governmental departments conspire to keep safely hidden information which would damn them in the eyes of all the civilized world. He lifts the eyebrow at the claims made for animal experimentation. He proves that because the dog is anatomically and physiologically unlike man it is impossible to reason from dog to man, but by the same token, one can nosaer from man to dog. The human, the comparative, the plant pathologists and bacteriologists indulge themselves in "silly" practices of "proving over and over again what has been known for hundreds of years." He has himself demonstrated the non-bacterial origin of tuberculosis. He himself has shown, "to descend to the low level of science," that physicians who indulge in vaccination and immunization practices merely do so because of the money there is in it. Not one single fact has been worked out on a dog which can be applied to man himself.

But the gentleman has \$5,000 of real material money and the language that money talks is well understood by the patho logic and begets response probably through the inferior colliculus. This money, we understand, is available for a single instance of where animal experimentation has contributed to the solving of any disease problem in man. Please make the draft payable to the American Society for the Control of Cancer.

Meltzer and Auer worked out the magnesium sulphate treatment for acute tetanus on dogs and the treatment has proved successful both in man and dog. Let the antivivisection society appoint a committee to look into this matter and, if the money is not forthcoming, let a non-partisan committee sit on the antivivisection committee to find out what seems to be the matter with them.

Is there no one in this great and good land of ours who can put a stop to this seductive and traductive nosaer? We can forgive the *Missouri News*. It has led the facts astray, it is true, but has contributed to the humor of the situation. We can however see nothing but the pathetic in the patho logic of Dr. Hadwen, exponent par excellence of traductive nosaer. If indeed the world must be made up of all sorts of people, the loss of such men would not shift the polar axis. We can live with the unfortunate who are stone deaf and cross-eyed. We fail to discover a function for one who is fact-deaf and possessed of mental strabismus. Perhaps the exhibition of a milligram of common sense, a fact-soluble vitamin, would have a good effect.

Facts may seemingly be led astray but they don't remain astray. Facts are also self-cleansing against defilement. It is doubtful that the invective and the innuendo will ever prove a serious menace either to sanity or sanitation. It may however be necessary to meet an enemy with similar weapons. We therefore broadcast the idea that we ourselves can invect and innuend something scandalous if an improper occasion arises. We are also training our eyebrow and contemplating a course in elocution.

But how about that \$5,000? We resent Dr. Hadwen seeming "to get away with his stuff," as the newspapers say. And the idea of so much good money keeping such careless company, even begging someone to adopt it and put it to some useful purpose, is very distinctly distasteful to us.

THE MENDEL-PASTEUR CENTENARY CELEBRATION AT ST. LOUIS UNIVERSITY

St. Louis University will commemorate the centenaries of the births of Mendel and Pas-

teur by a formal convocation in the University Auditorium on December 14. President Robison will preside. The ceremonies will open with an academic procession in which the entire faculty of the University will participate in academic dress. After President Robison's introductory remarks explanatory of the occasion, President Jones of Missouri University and Chancellor Hall of Washington University will offer tribute to the memory of the two scientists whose birthdays are being commemorated. Then Professor Herbert S. Jennings, Professor of Zoology and Director of the Biological Laboratories of Johns Hopkins University, will deliver an address on "Mendel, the Scientist." This, in turn, will be followed by an address on "Pasteur, the Scientist," by Professor Victor C. Vaughan, Emeritus Professor of Hygiene of the University of Michigan, and Chairman of the Division of Medical Sciences of the National Research Council. President Robison will conclude with an address on "Science and the Man."

Invitations to the celebration have been sent to the leading universities and learned societies of the country and, individually, to some faculty members of the two other universities of Missouri; they have also been sent to many members of the medical profession in Missouri and elsewhere.

During their stay in St. Louis, President Jones, Professor Jennings and Professor Vaughan will be guests of the University. On the day of the ceremonies a luncheon will be given in honor of the four speakers, to which representatives of the three universities of Missouri as well as of the local Johns Hopkins and Michigan alumni will be invited.

PHYSICIANS IN THE LEGISLATURE

Several physicians and one dentist were elected to the General Assembly last month. Dr. Fred L. Ogilvie, of Blodgett, a member of our Association, will represent Scott County in the House of Representatives, succeeding Dr. Malone, a retired practitioner who voted for the Medical College Bill and the Hospital Bill.

Dr. Robert F. McReynolds, of Knox City, a former member of our Association, was elected to the House of Representatives from Knox County. Dr. McReynolds has two sons practicing medicine, both of them members of our Association.

Dr. W. A. Porter, of Lafayette County, has been re-elected a member of the House. He is one of our members who was very active in

his opposition to the obnoxious bills that we opposed in the last session.

Dr. Heine Marks, former Superintendent of the St. Louis City Hospital and a member of the St. Louis Medical Society, will take his seat in the House of Representatives for the first time, representing the Fifth District of St. Louis.

In the Senate, Dr. B. B. Tout, of Cass County, holds over and another member of the medical profession will be seated with him when Dr. D. N. Dabbs, of Rocky Comfort, McDonald County, takes his seat.

Dr. L. V. Cockrum, of LaBelle, is the dentist who was elected and will represent Lewis County in the House of Representatives. Dr. Cockrum also holds the degree of Doctor of Medicine but has limited his practice to dental surgery.

The re-election of Mr. O. A. Pickett, Senator from the Fourth District, brother of C. P. Pickett, of Jefferson City, and the election of Mr. Wm. R. Painter, of Carrollton, as Senator from the Eighth District, encourages a more hopeful spirit that the members of the upper house will appreciate the need for legislation to restrict would-be healers from practicing medicine without having an adequate knowledge of the human body and its diseases. Senator Painter was Lieutenant Governor in 1914 when Dr. Allee was a member of the Senate and always consulted with Dr. Allee on questions affecting the health of the people and the protection of physicians.

In the last session of the General Assembly a precedent was established when the people of a district in St. Louis sent a negro to sit in the House of Representatives but he was defeated for re-election this year. Another precedent has been set by the election of two women to seats in the House of Representatives. Miss Sarah Lucille Turner, a young lawyer in Kansas City, was elected to represent the Sixth District of Jackson County and Mrs. Miliceme T. Smith will represent the Second District of St. Louis County.

Dr. George M. Bristow, of Princeton, Mercer County, one of our members who represented his county in the last House of Representatives, did not seek re-election. We shall miss his influence and pleasant personality on the floor of the House for he worked with untiring zeal during one of the most strenuous sessions the legislature has passed through in a number of years.

Dr. W. P. Rowland, of Bevier, Macon County, another physician who was in the House last session, was also a hard worked member of the last House who did not seek re-election.

STATE HOME FOR ABANDONED AND NEGLECTED CHILDREN

In 1921 the legislature passed an act creating the State Home for Neglected and Abandoned Children to be administered under the direction of the State Board of Charities and Corrections. Soon after the law was approved by the governor the board investigated several sites and early in 1922 located the institution in Carroll County where a site of forty-five acres of highly productive land was obtained lying partly within and partly without the City of Carrollton. The Home consists of several buildings in good condition surrounded with shade trees. There is an orchard and good ground for gardening. Children under seventeen years who have no home or if they are neglected or abused at home, may be admitted, but no mental defectives are received. For the present only boys are taken in, girls being placed in boarding homes in Jefferson City.

The Home is certainly proving its value to the state as a means of removing children from the malign influence of bad companions and the criminal element. Undoubtedly the first step in criminality by children of this class is taken by those who have fallen into the hands of evildoers. The abandoned, abused and neglected child quickly responds to kindnesses shown by strangers and eagerly seeks opportunities of repayment by service and devotion. Nor in most instances will he question the morality of his acts, especially if his introduction to crime is a gradual process. With his moral sense dulled by abuse from his elders and his predatory instincts sharpened by adversity, these children are easily led into a life of crime. On the other hand they can be quite as easily put into the road that leads to honest and respectable citizenship if placed in moral surroundings. Indeed, we believe these normal minded children of the streets will respond more promptly to good influences than to evil, for criminality is repugnant to the normal mind. Hitherto the state has utterly ignored its responsibility for the care of these unfortunates. Institutions have been built and care provided for the feeble-minded and the insane, but the neglected and abandoned children with normal mentality were permitted to drift upon the sea of life, like flotsam on the ocean, whithersoever the tide might carry them.

The splendid service already performed by the Home, although it is only partially equipped to do all that can be done for these children, gives promise that these unfortunates will be snatched from an abyss of ignorance and depravity and put on the road to good citizenship. Here they will be surrounded with all the influences to be found in Christian

homes and its tremendous possibilities for good are already apparent to the managers and to the Board of Charities. As rapidly as possible the children are placed in homes of responsible citizens, sixty-five of them having been placed this year. The Home is under the direction of Mrs. M. C. Redd, Matron, formerly associated with the Masonic Home at St. Louis, and Dr. C. S. Austin, Carrollton, is the physician in charge.

REVOLT OF PHYSICIANS FROM THE VOLSTEAD ACT

One hundred and five prominent physicians of New York City have initiated a movement to force the annulment of the restrictions on prescriptions for whiskey established by the Volstead Act. The first step towards judicial decision on the matter was taken when Dr. Samuel W. Lambert, Dean Emeritus of the College of Physicians and Surgeons, Columbia University, caused subpoenas to be issued against the enforcement officers in New York City to show cause why this section of the law should not be declared inoperative.

The movement is not unexpected; the wonder is that rebellion against such an unwarranted invasion of the field of medical practice and the destruction of the constitutional rights of physicians has been so long delayed. But that is characteristic with American people, of the law-abiding, forward-looking element among us, and as a class the medical profession is not outranked by any other class as active, energetic upbuilders of the general welfare.

All physicians knew that the adoption of the 18th amendment would curtail their professional rights and advocates of the therapeutic value of alcohol believed some of their patients would suffer deprivation thereby; however, all physicians were willing "to be shown" that the limitation of alcohol as a therapeutic agent was beneficial to the country and not harmful to the sick. The invasion of their professional rights was regarded as a secondary matter and not to be considered if by obedience to this drastic law humanity would be served.

Now after four years of enforcement the evidence is accumulating that resignation to this oppressive measure insofar as it negatives the free exercise of his judgment of when to prescribe whiskey, is a vain sacrifice by the physician.

The movement inaugurated by Dr. Lambert and others will be watched with much interest by the medical profession of the entire country. It is not an anti-prohibition movement; in fact, according to the news dispatches

some of the physicians are strict prohibitionists and all of them are opposed to the promiscuous and wide-open sale of intoxicants, but it is an attempt to overthrow the autocracy of self-appointed critics and to prevent further invasion of the professional rights of physicians as conservators of the health of the people.

Besides Dr. Lambert other prominent physicians identified with the movement are: Chas. L. Dana, eminent neurologist; Samuel A. Brown, Dean, New York University and Bellevue Hospital Medical College; Herman M. Biggs, Health Commissioner of the State of New York; Harlow Brooks and T. B. Wallace, well-known New York physicians; Walter B. James, former President New York Academy of Medicine; Warren Coleman, Professor of Medicine, Cornell Medical College.

An association has been formed called the Association for the Protection of Constitutional Rights. Its officers are: Dr. Samuel W. Lambert, president; Dr. James F. McKernon, vice president; Dr. Warren Coleman, secretary, and Dr. Frederic E. Sondern, treasurer. The following compose the executive committee: Dr. Nathan E. Brill, Dr. William K. Draper, Dr. Charles N. Dana, Dr. J. T. Gorton and Dr. J. Bentley Squier.

PUT MISSOURI IN THE BIRTH REGISTRATION AREA

For a number of years Missouri has been included in the death registration area in the United States but is not included in the birth registration area. In the passage of the medical practice act and the vital statistics law, the latter establishing the system for reporting births and deaths in accordance with the rules of the Bureau of the Census, our Association took a leading part. We have also successfully defeated all attempts to repeal or impair the effectiveness of the vital statistics law. There is every reason why Missouri should be included in the birth registration area but this will not happen until the Census Bureau is convinced of the accurate reporting of at least 90 per cent. of the births occurring in the state.

St. Louis has for some time shown a high degree of completeness in its birth records and upon the basis of these records that city now has the distinction of showing the lowest infant mortality rate of any large city in the country. The state ought to be in the birth registration area and with this object in view Dr. Irl Brown Krause, Director of the Division of Child Hygiene of the State Board of Health, has begun a campaign of publicity in order to arouse not only physicians but also the public to an appreciation of the importance

of birth statistics in disease prevention. The state law requiring the registration of births is sufficiently specific and our vital statistics would be complete if physicians and parents would co-operate in the work of reporting all births.

The advantages of registering the birth of every new-born baby are numerous and well understood by the thoughtful physician, not only in the interest of the child's future but also as a source of information for the health authorities.

We feel sure that our members will co-operate with the board of health in its campaign to encourage the report of every birth in order to bring Missouri in the registration area.

CONTROL OF VENEREAL DISEASE

It is now two years since the State Board of Health added venereal diseases to the list of reportable diseases and required all cases of syphilis, gonorrhea and chancroid to be reported to the board. The propriety of this regulation met with considerable doubt in the minds of some physicians and its enforcement at first found active opposition in some parts of the state. Unlike smallpox, yellow fever, influenza and other devastating communicable diseases, syphilis and gonorrhea do not occur in epidemic form and their destructive ravages, immediate and remote, were until recently unknown to the public.

The epidemic diseases that kill thousands at every outbreak not only drove the people to protect themselves from infection but induced a universal spirit of co-operation to find the means of preventing future attacks of these piratical enemies of life. The germs of venereal diseases are not endowed with such swift death-dealing venom and they grow and are communicated in secret places shut off from the public eye. They grow slowly, they attack gradually, insidiously, and without apparent symptoms, until the body is saturated with the poison and then the victim realizes his condition, often after he had forgotten that he had been exposed.

To the physician it is not a matter of great wonderment that the people have been slow to realize the need for the control of venereal diseases, but now another day has dawned and discussion of venereal diseases is more open and more general with a consequent knowledge of their danger to the human body and a willingness on the part of the people to co-operate in the prevention of their spread.

During the two years that the Board of Health has required venereal disease reports over 20,000 cases have been recorded, we learn from the first report of Dr. R. L. Russell,

Director of the Department of Venereal Diseases, just issued. In the report Dr. Russell tabulates 10,249 cases reported in the fiscal year July 1, 1920, to June 30, 1921. This large number of reports coming in the first year after the diseases had been declared reportable shows that the physicians in the state have co-operated with the board in a most commendable fashion; in fact, Dr. Russell says: "It is thought because venereal diseases are connected with sexual immorality, this would prevent their being reported by physicians. But the physicians of the state have co-operated with credit to themselves, and have assisted very materially in distributing printed literature and giving instructions to patients, which will prevent further infection."

Charts accompanying the report are interesting. In the age groups it was to be expected that the years 21 to 30 would show the highest number of infections and the chart shows 5,189, only 10 less than one-half of all the cases reported, fall into this age group. A very large number, however, are seen in the group of 15 to 20 years, the total being 2,413, while in the group of 31 to 40 years the number is 1,579.

The department has established 22 clinics in various cities in the state for the free treatment of persons unable to pay for the services of a physician. There were 8,820 new cases received at these clinics during the calendar year of 1921.

The campaign against venereal diseases as outlined in the report is three-fold:

1. *Medical.*—Medical measures necessary for the control of these diseases require the unanimous co-operation of physicians in reporting cases; the support of newspapers and advertising mediums in stamping out quack advertising; of druggists in refusing to sell patent medicines; of hospitals in providing treatment for venereal patients; free accessible venereal clinics. The cordial support of city and town councils and private organizations is needed for the development, treatment and rehabilitation of infected prostitutes. Every citizen is required to help in observing the proper sanitary precautions in the use of common utensils.

2. *Educational.*—The educational offensive exempts no one from service. The brains and intelligence and tact of the local communities are needed for the education of all, especially the ignorant, illiterate, the tempted and the "worldly wise," as to the seriousness and physical dangers of these communicable diseases. This means wide use of pamphlets, lectures, motion pictures and exhibits.

3. *Law Enforcement.*—Law enforcement effective enough to suppress commercialized

prostitution (the principal means of carrying venereal diseases) requires that mayors, councils and commissions, police chiefs, sheriffs and constables, prosecuting attorneys and judges enlist in the fight. Everywhere citizens' clubs and leagues and associations must be vigilant to see that their public officials actually prevent prostitutes and their allies from soliciting.

PROFESSOR BARANY'S VISIT

Professor Robert Barany, formerly of the Politzer Ear Clinic in Vienna, now Professor of Otology in the University of Upsala, Sweden, was a visitor in St. Louis from October 9 to 21, 1922.

Professor Barany was identified for a period of years as assistant to the Politzer Clinic where he undertook much experimental investigation and research work in connection with the static labyrinth and had at his disposal material from the neurological clinics and the International Medical and Ear Clinics of the Allgemeines Krankenhaus in Vienna. For his researches and conclusions in the physiology and pathology of the static labyrinth he was awarded the Nobel Prize in 1914, and was the recipient of the Lenval Prize at the International Otological Congress in Budapest.

His researches, in conjunction with other otologists of the Vienna school, made possible the systematic examination of aviators during the war in order to test their static labyrinth. It is a matter of considerable importance to determine this fact before sending a young aviator up in a plane. The diagnosis and localization of various forms of intracranial tumors, abscesses, etc., have been made more accurate by virtue of this research, especially in the various reactions for nystagmus.

While serving as a medical officer in the Austrian army Professor Barany was taken prisoner and detained for a long period in the Russian prison camps. At a smoker given in St. Louis in his honor during his recent visit he gave a very interesting reminiscence of his experience as a Russian prisoner.

Since the war Professor Barany has established himself in Sweden and has been named Professor of Otology in the University of Upsala. He came to America on university furlough in September and is engaged in presenting a fortnightly lecture course in various medical centers. In this lecture course he includes the following:

1. The peripheral and central vestibular apparatus.

2. Operation for mastoiditis and after treatment.

3. Method of dissecting the cisternae on the base of the brain.

4. Theory of the artificial drum and operation for otosclerosis.

5. Primary excision and primary suture of wounds of the skull and brain, especially of gunshot wounds. Primary excision and suture of accidental wounds in general.

6. Operation of the frontal sinus and after treatment.

These courses have been presented in Minneapolis, St. Louis, Chicago, Denver and Los Angeles, and before the holidays he will complete a course in Cleveland and Detroit. During the Christmas holidays he will be a guest of honor at the meeting of the American Association of Physiologists in Toronto, Canada. Beginning early in January he has been invited to give courses in Philadelphia, Memphis, Omaha and Kansas City and probably will wind up his American tour with a course in New York City. In addition to this classical course in otoneurology Professor Barany has been the guest of honor of the American Academy of Otology and Laryngology which met in Minneapolis in September.

As the guest of the St. Louis Medical Society he presented an intensely interesting address on vertigo, October 17. On this occasion he was introduced by Dr. Wm. W. Graves, the president, and by Dr. M. A. Goldstein, and lectured to a capacity audience of the members of the Society. In Chicago he gave a similar address before the Chicago Medical Society, while in Minnesota he gave the annual lecture at the Mayo Clinic, choosing a similar subject to the one presented before the St. Louis Medical Society. He has been invited to give the Hanna lecture in Cleveland while he visits that center and has accepted invitations to present addresses on subjects connected with otoneurology in various other cities which he visits.

Professor Barany is a man of extremely modest demeanor, slight in build, talks deliberately and in very fluent English; he is democratic, easily approachable and always ready and willing to exchange opinions and discuss with members of the profession all subjects on otoneurology and kindred interests. He seeks especially the association of neurologists, head surgeons and otologists and ophthalmologists who are interested in the newer problems of neurology and their bearings on vestibular reactions.

While in St. Louis his course was given in the Otological Department of Barnes Hospital and was participated in by thirty of the local otologists, neurologists and ophthalmologists. The course consisted of twenty hours, lectures and demonstrations, distributed over two

weeks, one and one-half hours daily. He also demonstrated the radical mastoid operation without plastic, operating on the living and in addition showed the technique before the group on the cadaver.

NEWS NOTES

DR. WILLARD BARTLETT, of St. Louis, was recently the guest of the Academy of Medicine of Terre Haute, Indiana, and delivered an address on "Factors of Safety in the Operative Treatment of Thyroid Disease."

DR. HERMAN C. ROSS, of St. Louis, was killed November 5, and Dr. Charles N. Wilhelmji, Erman Stadler and Jose Zozaya were injured when the automobile which they were driving plunged down an embankment and was wrecked.

THE Treasury Department has announced that Dr. J. W. Scherechewsky, assistant surgeon general, U. S. Public Health Service, has been commissioned to conduct an investigation into the cause of cancer; the headquarters of this investigation will be established in Boston.—*Science*.

DR. CARL POWELL, St. Louis, has purchased the building at 3511 Lucas Avenue and made extensive alterations to make it adaptable to his offices. Dr. Fred B. Hall has moved his X-ray laboratory from the Lister Building and has secured quarters in the building that Dr. Powell has remodeled.

DR. FLOYD H. SPENCER, of St. Joseph, was elected president of the Missouri Valley Medical Society for 1923, Dr. Oliver C. Gebhart, of St. Joseph, was re-elected treasurer and Dr. Chas. Wood Fassett, of Kansas City, was re-elected secretary. The next meeting of the Society will be held at Omaha.

THE Research Hospital, Kansas City, has begun the publication of a quarterly bulletin. The first number was issued in October and presents eight articles treating of conditions met with in the hospital. The bulletin is a well printed and attractive pamphlet of twenty-four pages printed in excellent type and well illustrated.

DR. ROYAL S. COPELAND, Health Commissioner of New York City, has been elected to

the United States Senate by a very large majority. Dr. Copeland was professor of ophthalmology in the University of Michigan from 1895 to 1908. He is the author of a textbook on refraction and a former president of the American Ophthalmological and Otological Association.

AVALON, Mo. (Livingston County), offers a splendid opportunity for a first-class physician desiring country practice. Avalon is situated in one of the richest sections in north Missouri, population about five hundred, all lines of business represented, and the people in the vicinity are prosperous farmers. No investment required. For full particulars address the Secretary, 3529 Pine Street, St. Louis.

DR. CHARLES L. GIBSON, of New York City, Professor of Surgery, Cornell University Medical School, and Surgeon of the New York Hospital, was the guest of the St. Louis Surgical Society November 8, 1922, and delivered an address on the "Follow-Up." Dr. Gibson discussed the value of the follow-up system for hospitals and for the patients after leaving the institution's care as shown through the light of his experience in the large hospitals in New York City.

AUGUST J. MEYER, of St. Louis, a chiropractor, was found guilty of practicing medicine without a license in the St. Louis Court of Criminal Correction and fined \$50 by a jury. The family physician had diagnosed the case "sleeping sickness," the autopsy revealing that the patient had been suffering from tuberculous meningitis and tuberculosis of the lungs. Meyer, of course, denied that he had been practicing medicine, testifying that he gave the patient "adjustments" but had prescribed no medicine.

THE Advisory Medical Staff of the Tuberculosis Society of St. Louis, in co-operation with the St. Louis Medical Society Speakers' Bureau, will give a course of eleven public health lectures for all persons interested in health work. The first of these lectures was delivered by Dr. M. P. Ravel, Professor of Preventive Medicine, University of Missouri. The lectures are free on the first and third Tuesday of each month at the Melbourne Hotel from 4:30 to 5:30 p. m. The full program is published on another page.

ACCORDING to an announcement published in the daily press, the University of Missouri will ask the General Assembly when it meets

next January for a budget of \$4,942,248 for the University and \$614,000 for the Rolla School of Mines. About one-half of the money is for the completion of buildings and equipment and other new structures needed to care for the increased enrollment. In the amount for new structures is included \$250,000 for addition to the general hospital if the plan for a million dollar hospital is adhered to. For maintenance \$1,950,000 is asked for the two-year period. Out of this sum is paid the salaries of the teaching and administration forces, janitors, workmen and cost of fuel, light and incidental expenses.

THE following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Lederle Antitoxin Laboratories: Diphtheria Toxin-Antitoxin (0.1L+).

H. A. Metz Laboratories, Inc.: Alumnaol.

H. K. Mulford Company: Hay Fever Timothy Pollen Extract-Mulford.

Parke, Davis and Company: Normal Horse Serum-P. D. & Co., Rabies Vaccine (Cumming)-P. D. & Co.

E. R. Squibb and Sons: Acne Vaccine, Colon Vaccine-Squibb, Gonococcus Vaccine, Meningococcus Vaccine, Normal Horse Serum, Pertussis Vaccine, Curative, Pertussis Vaccine, Immunizing, Purified Diphtheria Antitoxin (Antidiphtheric Globulin), Pneumococcus Vaccine, Staphylococcus Vaccine, Staphylo-Acne Vaccine, Streptococcus Vaccine, Tetanus Antitoxin Purified, Typhoid Vaccine, Typhoid Vaccine Combined, Immunizing.

THE famous collection of pathological specimens of the eye, gathered by the late Professor Wintersteiner, of Vienna, has been acquired by the St. Louis University Medical School through the generosity of Mr. Charles Rebstock, of St. Louis. The collection consists of about 13,000 microscopic slides and is probably the largest collection of its kind in existence. This wonderful collection of pathological conditions of the eye includes not only many varieties of ordinary diseases met with in ophthalmological practice but also some rare abnormalities, specimens of conditions that find their way into the hands of only such a methodical physician and teacher as Professor Wintersteiner, whose patients were drawn from the entire world. The collection will be used in the teaching of ophthalmology and especially for the instruction of post-graduate students. Dr. J. M. Keller, Assistant Professor of Ophthalmology, was commissioned by the University to go to Vienna to

take charge of the transportation of the collection. It is now stored in the medical school and is being classified and catalogued.

A HEALTH survey of the printing trades has been authorized by the International Joint Conference Council, representing both employers and employees. The survey is intended to cover two years and will be nation-wide. The work will include a thorough study of printing processes in their relation to health and of printing house conditions, possibly more or less detrimental to health and life. The investigation will be carried on in co-operation with a large number of governmental, scientific and corporate organizations, including the United States Bureau of Labor Statistics, which will have charge of the major portion of the social and economic inquiries. A large measure of co-operation is expected from the insurance companies, but especially from Harvard Medical School, Yale Medical School, the Public Health School of Johns Hopkins University and a number of state health and labor departments. Particular emphasis will be placed upon methods of ventilation, air-pollution, lighting, eye-strain, posture and physique. The investigation will be under the immediate direction of Dr. Frederick L. Hoffman, dean of the advanced department of the Babson Institute, Wellesley Hills, Massachusetts, and consulting statistician to the Prudential Insurance Company of America.—*Science*.

THE thirteenth annual meeting and luncheon of the National Committee for Mental Hygiene was held at the Pennsylvania Hotel in New York on November 9. Addresses were made by Dr. Haven Emerson, Professor Stephen P. Duggan and Mr. John J. Carty, of New York, Professor Elton Mayo, of the University of Queensland, Australia, and Dr. Frankwood E. Williams, Medical Director of the National Committee. Dr. Emerson spoke on the importance of the mental hygiene movement as a public health factor and asked for the support of those who have hitherto subscribed to the movements against infant mortality, tuberculosis and the other infectious diseases. He also plead for the wider education of physicians in mental diseases after showing that more lay people were acquainted with the subject than doctors. Dr. Walter B. James of New York was re-elected president of the committee. Other officers elected were Dr. Charles W. Eliot, Dr. Bernard Sachs, and Dr. William H. Welch, vice presidents; Mr. Otto T. Bannard, treasurer, and Mr. Clifford W. Beers, secretary. Among those re-elected

to membership were: Dr. L. Emmet Holt, Dr. John H. Finley, Mr. John J. Carty and Judge Learned Hand, of New York; Dean Roscoe Pound and Dr. Anson Phelps Stokes, of Massachusetts; Dr. Malcolm A. Bliss, of St. Louis.

THE medical profession would "become more capable and honorable within itself and more useful to the public," to quote from the purposes of our Association, if strict attention were given to the moral qualities of applicants for matriculation in medical schools. The abortionist, the drug peddler, the fee splitter and the advertising quack would then be less numerous. Perhaps instead of moral qualities it would be more correct to say loyal qualities for no one who possesses an adequate sense of loyalty can seriously violate the moral code. Nor should it be difficult to catalog the students in this respect; the youth who fails to measure up to the standard of behavior in school and college certainly will be disloyal to any cause when the choice between selfishness and principle arises, and the cause of medicine often demands sacrifices that put one's loyalty to the severest test. Medical schools are beginning to scrutinize this characteristic in prospective matriculants. When this practice becomes general and the unworthy are refused admission the honorable followers of the healing art will not be shamed and humiliated so frequently as they now are by the disloyal acts of some members of the guild. An encouraging word in this direction was spoken by Dr. Chas. Phillips Emerson, Dean of the Indiana School of Medicine, in a talk before the Academy of Medicine of Cleveland, Ohio, recently on "Ideals in Medical Education." "In closing," we quote from the *Bulletin* of the Academy of Medicine, "Dr. Emerson spoke of the need for stressing the moral qualities of graduates of medical schools, explaining that at Indiana some diplomas were withheld because the faculty felt the students were not morally qualified to enter the medical profession."

THE new building of the National Academy of Sciences and the National Research Council.

On the afternoon of Monday, October 30, the cornerstone was laid of the new building of the National Academy of Sciences and of the National Research Council at Washington, D. C. This building, construction of which has now been carried above the main floor, occupies a desirable location upon an entire block of land north of the Lincoln Memorial at the western end of the Mall, commanding an excellent and permanent view of

the Memorial, the Riverside Park and the bank of the Potomac beyond. The land for this building was purchased through contributions from a group of twenty friends of science.

The building is designed for two main purposes: To house the offices of the two organizations for which it is erected, and to provide space for the exhibition of materials representing certain of the great achievements of science in the past and especially of recent contributions of particular significance in the progress of science. The building presents a facade to the southward 260 feet in length, and will rise to a height of 60 feet above the first floor. In this section there will be three floors for offices, library and special exhibit rooms. Behind this will be a rotunda for general exhibition purposes which will be convertible at need into a lecture room accommodating, with its galleries, over 400 people. The plans permit the addition of other units similar to the southern facade, to complete a quadrangle around the rotunda. The building is being faced with white Dover marble of fine quality and color which makes it in keeping with the other monumental buildings of the city. The cost of the unit at present under construction will be over \$1,000,000. The funds for the erection of the building were provided by the Carnegie Corporation of New York.

The laying of the cornerstone was a ceremony of the simplest kind without the presentation of any addresses. It was attended by officers and members of the Academy and of the Research Council, among whom was the Honorable Herbert Hoover, Secretary of Commerce.

The stone itself, bearing the date "1922" and the initials "N. A. S." and "N. R. C.," occupies a position high in the wall of the first story at the southwestern corner of the building. Within a copper box in the stone were placed significant documents connected with the founding of the National Academy and of the Research Council and lists of the members of both organizations. It is expected that the building will be ready for occupancy in the fall of 1923.—*Science*.

OBITUARY

ROLLA HENRY, M.D.

The untimely death of Dr. Rolla Henry on the evening of September 13, 1922, was a shock to his many friends and especially to his associates of the Hospital Division of the St. Louis Department of Public Welfare, in

which division he had labored well during practically the whole of his professional life. By reason of his many years of public service he was widely known to members of the medical profession of St. Louis.

Graduating in 1908 from the St. Louis University School of Medicine, he successfully passed his examination for junior intern at the City Hospital, where he served creditably. He was promoted to senior intern, serving in this position with equal ability. In 1910 he was appointed assistant dispensary physician and in 1911 chief dispensary physician. It was during his service as chief dispensary physician that his ability for executive management first attracted attention, and under his direction this branch of the division was reorganized, developed and placed upon its present high plane.

A vacancy occurring in the position of superintendent of the City Hospital, Dr. Henry became the logical man for the place and his appointment on October 8, 1918, followed. His years of service as superintendent were a continuation of his able executive management, and he gave to this difficult position all his marked ability, failing to keep account of working hours, always striving to the end that the conduct of the institution should be a credit to him and a pride to his city.

While his years of labor were comparatively few, his accomplishments were many and his death, in the flower of his manhood, deprived his profession and the community of the service of an able, honest, conscientious worker in the field of relief of suffering humanity. To his family, especially to his widow and little daughter, the deepest sympathy of his friends and associates will be extended.

G. A. JORDAN, M.D.

JAMES LEE ROBERTS

1878-1922

James Lee Roberts was born at Emporia, Kansas, in 1878, and died of pneumonia, at the Kupper Hotel, in Kansas City, Missouri, October 17, 1922.

Dr. Roberts received the degree of Bachelor of Arts from the College of Emporia in 1901, and that of Doctor of Medicine from the Louisville Medical College in 1904. He became a member of the Jackson County Medical Society in 1907. For many years he had confined his work exclusively to diseases of the gastro-intestinal tract.

He entered the Medical Corps of the Army July 30, 1918, and was discharged, with the rank of Captain, May 11, 1919, after serving as consulting gastro-enterologist at Port Mc-

Clellan, near Anniston, Miss., and at Norfolk, Virginia.

Dr. Roberts was an active member of the Kansas City Club, the University Club, Westport Lodge, A. F. and A. M., and the Murray Davis Post of the American Legion.

He is survived by his widow, Gertrude Roberts; his mother, Mrs. Alfred Roberts, of Emporia, Kansas; three sisters, Mrs. Edgar Ford, Mrs. W. C. Harris, and Mrs. W. H. Richards, all of Emporia, and two brothers, T. H. Roberts, of Oklahoma City, and A. B. Roberts, of Muskogee.

Dr. Roberts was a man of charming personality, a staunch and loyal friend and comrade, and an enthusiastic student of medicine.

He will be missed by a large circle of members and friends. We extend our deepest sympathy to his family.

NECROLOGIC COMMITTEE,

A. A. FREYMAN,

W. F. KUHN.

—From *Bulletin*, Jackson County Medical Society.

SYLVESTER D. FOX, M.D.

To those who knew him the death of Dr. Sylvester D. Fox came as a distinct surprise and shock. He was in the prime of life at the age of forty-six and had been actively associated with public and semi-public medical work for a number of years.

He was surgeon for the Missouri Pacific Railway for seventeen years, having had charge of the Kansas City Branch Hospital for some time before the war. He resigned to enter the service and was wounded in the right leg. It is thought that his death may be due in some measure to his work and trials in the army. Dr. Fox was working in the city dispensary service when his final illness set in and he resigned and entered the Public Health Service Hospital when his death occurred from pleurisy and complications on November 12, 1922.

Funeral services were held at St. Mark's Church and the Medical Society arranged for physician friends to act as pall bearers. The sympathy of the St. Louis Medical Society is extended to the members of the family.—*Bulletin* St. Louis Medical Society.

CORRESPONDENCE

U. S. VETERANS' BUREAU NEEDS NEUROPSYCHIATRISTS

To the Editor:

The United States Veterans' Bureau offers a special course in neuropsychiatry to a cer-

tain number of qualified physicians on condition that upon completion of such course they will continue in the service of the Bureau for a period of at least two years thereafter.

The policy of this Bureau is to provide expert medical attention for the disabled veterans so that everything possible may be done to restore them to health and proper status in civilian life. To maintain this policy in the opening up of new hospitals, and being unable to secure the required number of specialists in nervous and mental disease, it becomes necessary to instruct a staff of our own for this line of work. To this end a systematic and comprehensive course in neuropsychiatry has been carefully outlined consisting of 176 lectures and demonstrations and some 440 hours of clinical and laboratory work. Each course will be for a period of about four months. There will probably not be more than two courses annually. Courses will be offered as long as it appears necessary in order to meet Bureau requirements. Instruction will include the necessary reviews of the fundamentals, followed by clinics and lectures on the various forms of nervous and mental diseases, including endocrinology. Special attention will be devoted to diagnostic methods, the general care of patients, and methods of treatment. Students will have actual experience in practical work. General problems of hospital administration, medico-legal questions, rehabilitation methods, psycho-metric examinations and other related matters will be adequately dealt with.

The main part of this course will be given at St. Elizabeth's Hospital, a government institution for the insane at Washington, D. C., which offers unusual and unexcelled facilities for such work. There are nearly 4,000 patients and case histories of more than 20,000 discharged patients immediately available for study. Here are all classes of nervous and psychotic diseases, while other public hospitals in Washington will provide abundant clinics in so-called functional diseases, borderline cases, and the milder types.

The teaching staff that has been selected to give this course in neuropsychiatry is significant. Besides the members of the staff at St. Elizabeth's there will be lecturers from the Medical Departments of the Army, the Navy, the Public Health Service, the United States Veterans' Bureau and the U. S. Department of Agriculture. A number of America's most eminent neurologists and psychiatrists will come to deliver lectures on special topics.

As the number of students that can be accommodated is limited, early application for each course is desirable.

Physicians who desire to enter the service

of the U. S. Veterans' Bureau and to take this course in neuropsychiatry are requested to make application at once to the Director of the U. S. Veterans' Bureau, attention Medical Division, including thereon the information, and where necessary the documents, mentioned in the following list of qualifications:

1. Applicant must be a citizen of the United States.
2. Must be between 23 and 45 years of age.
3. Must be a graduate of a Class "A" Medical School with at least six months' service as interne in a general hospital or its equivalent.
4. Must present a certificate from the Dean of his Medical School as to his professional ability, his personal suitability, and his moral character.
5. Must be able to show by recent medical examination certificate that he is in good health and physically fit.
6. Must sign a statement that he will give at least two years' professional service to disabled veterans after completion of the course.
7. Must submit with his application a recent photograph of himself.

Ex-service men who have been honorably discharged will be given preference.

Other things being equal, members for the course will be selected in the order of their application.

Students who are authorized to take the course who are not already in the employ of the Veterans' Bureau will receive a salary of \$166 per month, with no allowances, while taking the course.

On satisfactory completion of the course members will be recommended for the grade of Passed Assistant Surgeon in the Reserve Corps of the U. S. Public Health Service, or they will become eligible for employment as Class "B" physicians under the U. S. Civil Service Commission and assignment to duty with the U. S. Veterans' Bureau. These salaries range from \$3,000 per year, upward.

The course will start on January 4, 1923.

T. H. SCOTT,
Acting Director.

MISCELLANY

OUR OPPORTUNITY*

JOSEPH GRINDON, M.D.

ST. LOUIS

Our profession has always and everywhere lived up to the full measure of individual service and de-

*Delivered before the St. Louis Medical Society, October 10, 1922.

votion. The ideals of loyalty and unselfish sacrifice held by the old Greek masters, and through the Byzantines passed on to the Arabs, found a ready soil among the men of the renaissance. The plant thus nurtured by Greek, Byzantine, Arab and the men of the thirteenth, fourteenth and following centuries flourishes vigorously among us today, truly a tree of life. Its leaves are for the healing of the nations, and its fruit is faith, hope and love.

But while physicians as a class have always stood ready to give not only their best, but if need be, their all to those seeking relief at their hands, it is a comparatively new thing for the profession, acting as a whole, to attempt to minister to the needs of the body politic. That such ministrations are our privilege and our duty, all now recognize. The reasons why we have only so tardily entered upon this corporate service are not far to seek. One is that it only became possible when the profession entered upon its present organized existence. Organization was itself a plant of slow growth, and attained its full stature in this country only a little before the birth of the present century. It may still require some spraying and pruning, but I believe that Organized Medicine, as it exists today, constitutes one of the greatest blessings conferred upon modern society. It unites a huge body of intelligent, learned, experienced and devoted men into a solid phalanx possessing enormous influence and capable of tremendous driving power. It furnishes a channel through which science can speak with the voice of authority so that all who will, may hear. It determines the standards of character and education which shall be demanded of those who purpose to pass its portals. It establishes an unerring pulpit to teach the uncertain, fortify the fearful and warn the wayward, and a just court to punish the guilty and to reward the deserving with the highest prize which the doctor may hope for from any source outside of his own soul, namely, the esteem of his fellows. It has operated to lessen jealousies and misunderstandings, and to bring men to know, regard and respect their brethren.

And yet do these benefits, great though they be, fill to the brim its capacity for good? Does it even now fully discharge its duties to the State and Nation? I believe that much as it has done and is doing, it can and will do more. Here is a great body of men possessed of the power and purpose to make this country and the world a cleaner, safer, better, happier place to live in, peopled by a stronger, healthier, wiser and more righteous race, a people not only longer-lived than their fathers, but capable of doing better work, of keeping longer at it, and of living nobler lives. Not only does this source of energy exist, but in organized medicine we own the necessary machinery to make it effective. Have we sought to apply this force and to employ this mighty engine? In places and at times we have, by pronouncements and manifestos addressed to the people by National, State and Local bodies in the presence of threatened dangers; by popular lectures, and articles in the secular press furnished by certain of our number duly authorized and designated for the purpose, and by arguing and pleading with legislatures for better and wiser laws. But the power we possess could, if properly applied, perform more potent service. I believe that the time will come, which may I live to see, when this giant, now half-awake, will assume greater responsibilities and perform mightier deeds. I hold that the organized profession of medicine should be represented in the councils of every city and state, and in those of the federal government. How often could it not point out urgent needs, save from costly errors, and perhaps turn the attention of our rulers from petty

and sordid details to some of the great and real things in the life of the Nation? I hold that it should lift a voice that even those deafened by self-interest could not choose but hear whenever any great matter of right thinking and right living was at stake. I hold that it should take a hand in politics—rightly understood. Not that it ever should or would array itself under any party banner, but that it should bear witness in behalf of right policies when Good and Evil contend for the mastery and in support of wise and patriotic public servants. It would seem a pity, that a great body of men, preponderantly intelligent and well-disposed, and possessed of special information, which not only illuminates their own field, but sheds light upon many of the most important affairs and relations of life, should not use their power for good in every direction possible.

Since these things are so, it behooves us to ask why we are not using our capabilities for service to the full extent? One reason I have already pointed out, namely, that organized medicine is still young and does not realize that it has attained to the strength of manhood. Some of those lingering without its portals, or even of those within its fold are apparently, even now, not apprised of its existence.

But another reason, to which I wish this evening particularly to call attention, is that it lacks the outer visible form which plays so important a part in other great institutions. Our government consists of men operating under a written law, but are we not often reminded of its existence by the building where its work is executed? And if these are beautiful, does not the sight of them stir our hearts and awake our patriotism? Who can look at the swelling dome of our National Capitol, outlined against the blue sky like a mountain of snow, without being made thereby a better American? And what use has not the church made of this help in securing and binding to herself the love of her children? Religion is a matter of the mind and heart, and does not depend for its existence upon pillar and buttress, nave and apse, arch and architrave. But does not the graceful and chiseled spire, ever pointing heavenward a silent finger, preach a sermon in stone heard even by those who never pass the sacred portals? Do not

"—— the high embowed roof
And antic pillars massy proof,"

move the heart to devotion?

Such constructions are not only the expression of the love and service of the members to the body corporate and to the ideas and ideals thus embodied, but they serve to advertise these ideas and ideals. Advertise! A hateful word! Yes, because some men have sought to advertise their individual capabilities and achievements, real or assumed, whereas we would seek to advertise the aims, ideals and hopes of the medical profession. But, some will say, we are already doing this in the best possible way by our tried loyalty to these aims and ideals, and by our manifold works of mercy. Did not the Master say, "By their *works* ye shall know them?" Yes, but He also said, "Let your light so shine before men, that *seeing* your works they shall glorify the Father."

One of the most successful ways of making men see an idea is by the erection of an enduring structure which in some way expresses that idea, silently, but yet so clearly that he that runs may read. Man has recognized this fact from the earliest ages. For four thousand years the pyramids have witnessed at once to the masterful mind and to the crushing weight of oppression which wrought their mighty

mass. The Parthenon still speaks of the "glory that was Greece," and its chaste lines and purity of style tell us of the cult of the virgin Athene. What bard could sing as sweetly of the love of the Shah Jehan for the beautiful wife he had lost as does the frozen poem of the Taj Mahal? The cathedrals of Chartres and Amiens, and still more perhaps the shattered spires of Rheims testify to the faith of former centuries. Our own Library of Congress leaves no doubt in the mind of the beholder as to the high esteem in which learning is held in this country.

Comparing small things with great, and in a far humbler way we can take a lesson from these great builders and seize the first opportunity of the kind presented to the St. Louis profession. Let us make it indeed our opportunity, and, while building a home to meet our pressing needs, give an outward and enduring form to our beliefs and aspirations, a form which without attempting magnificence, will yet tastefully, appropriately, and with commensurate dignity embody the soul of Organized Medicine, so that the passer-by will be informed or reminded of its existence? We will thus advertise, not ourselves, but our faith in our scientific and humanitarian tenets, and in each other to a larger audience than could be reached in any other way. Lectures and addresses are heard by only a few, and are soon forgotten. Books and articles are read but by a small minority, and that composed of those who least need them, but a building is a lasting witness to them all. Men are influenced by what they see, and are often led by what they see to inquire into the unseen.

And what will be the influence of such a possession upon its possessors? We will gather in increasing numbers under its roof, inspired to greater efforts at self-improvement and stimulated to fit ourselves for better service. We will take a just pride in it and learn to love it as we love our individual homes, and that pride and love will feed and enlarge the pride we feel and the love we bear to that larger home in which we dwell, builded not of stone and steel, but of long experience, wise counsel and high purpose, the organized profession of medicine.—*Bulletin, St. Louis Medical Society.*

PETITION TO NAME SCHOOL AFTER DR. WM. BEAUMONT

The St. Louis Medical Society recently adopted resolutions requesting the St. Louis Board of Education to name a high school soon to be erected the William Beaumont High School. The resolutions follow:

"WHEREAS, It has been brought to our notice that the St. Louis Board of Education will erect a new high school on Natural Bridge Road, and

"WHEREAS, The Medical Profession and many citizens of the City of St. Louis are justly proud of the life and works of the late Dr. Wm. Beaumont, whose fame is greater than that of any other medical man in the history of the City of St. Louis, whose experiments and observations on the function of the human stomach have never been repeated and are to this day accepted scientific truth, as they were at the time of their first publication, and who thereby has become a most potent factor in general and medical education, and

"WHEREAS, The present calendar year marks to centenary of the memorable accident to Alexis St. Martin which offered the opportunity for Dr. Beaumont's experiments; and

"WHEREAS, The naming of a public school in honor of William Beaumont would be a monument to a man who has shown himself equal to an opportunity and whose work will serve to inspire and encourage all posterity; therefore be it

"Resolved, That the St. Louis Medical Society, in meeting assembled, petitions the St. Louis Board of Education to name the new high school which will be erected on Natural Bridge Road, the 'William Beaumont High School,' and thereby perpetuate the memory of a man whose contributions will undoubtedly be of value to all future generations, and be it further

"Resolved, That a copy of these resolutions be sent to the St. Louis Board of Education and to the public press, and that every member of the St. Louis Medical Society be asked to supplement these resolutions by a personal communication to the St. Louis Board of Education and to use all possible influence to obtain the fulfillment of the wish of the Medical Profession of this city, as expressed in this resolution."

ELEVEN PUBLIC HEALTH LECTURES

Given Under Auspices of the Tuberculosis Society of St. Louis and the Speakers' Bureau of the St. Louis Medical Society, the First and Third Tuesday of Each Month, from 4:30 to 5:30 p. m., Melbourne Hotel, Grand and Lindell, St. Louis

November 7—DR. M. P. RAVANEL.

Part I.—History of Growth and Development of Health Department. Organization and Responsibilities.

Part II.—Tuberculosis Historical.

- A. History of Tuberculosis.
- B. General Distribution.
- C. Numerical Incidence.
- D. Economic Aspects.

November 21—MISS EDNA FOLEY, Chicago.

Growth and Development of Public Health Nursing and Its Correlation with Modern Social Service.

December 5—DR. JOSEPH F. BREDECK.

Growth and Development of Modern Medicine.
A. Medical Ethics in Its Relation to Social Workers and Public Health Nurses.

December 19—DR. SELIG SIMON.

Tuberculosis Infection.

- A. Bacteriological and Pathological Conception of.
- B. Characteristic of Germ.
- C. Sources of Infection.
- D. Theories of Invasion.
- E. Predisposing Causes.
- F. Resistance and Immunity.

January 2—DR. J. J. SINGER.

Tuberculosis Pulmonary.

- A. Anatomy of Chest and Lungs.
- B. Classification of Stages.
- C. Symptoms.

- D. Early Diagnosis.
- E. Other Forms of Tuberculosis.

January 16—DR. L. C. BOISLINIERE.

Treatment of Tuberculosis.

- A. Fundamental Factors.
- B. Supplemental Factors.
- C. Incidental Factors:
 - 1. Climate.
 - 2. Drugs.
- D. Dispensaries.
- E. Institutional.
- F. Home Treatment.

February 5—DR. GEO. GELLHORN.

Protection of Motherhood as a Public Health Problem.

- A. Prenatal Care.
- B. Obstetrical Care.
- C. Postnatal Care.

February 19—DR. JEANS.

History and Development of Child Welfare Work.

- A. Health Problem During First Year of Life of Child.
- B. Health Problem During Second Year of Life of Child.
- C. Health Problem of Pre-School Child.

March 5—DR. T. C. HEMPLEMANN.

The Communicable Diseases—Their Relation to the Child.

- A. Diphtheria.
- B. Smallpox.
- C. Scarlet Fever.
- D. Measles.
- E. Whooping Cough.

March 19—DR. M. F. ENGMAN.

Venereal Diseases as a Public Health Problem.
A. Medical Aspects.
B. Social Aspects.

April 2—DR. M. A. BLISS.

Mental Hygiene.

- A. Social Aspects.
- B. Community Organization for Early Diagnosis.
- C. Mental Abnormality.
- D. Special Classes and Special Schools.

"'PROPRIETARY MEDICINES AND THE DOCTOR'—AND BOTTLE MAKER"

A few weeks ago *The Journal* commented in these pages on a leaflet that was being sent, apparently, to all physicians of the country either by the "patent medicine" interests or by an organization interested in the glass bottle business. The nominal thesis developed in the pamphlet was to the effect that physicians and "patent medicine" makers should be friends because the "patent medicine" people "keep the American public sold to the curative properties of drugs." This, we say, was the nominal thesis. The real thesis, however, was that so long as the American public can be fooled into believing that everything that ails them can be cured by taking something three times a day out of a bottle, the

success of the glass bottle business is assured. Apparently, the interests that distributed this pamphlet to physicians did not cease there; they sent them also to newspaper editors. The editor of the *Boston Traveler* received one, and his reaction to it will interest physicians. Here is an editorial that appeared in the *Boston Traveler* of October 14:

An interesting pastime for an editor, when not otherwise engaged, is to trace the sources of the propaganda that flow in a constant stream to his desk. Today we pick from the general miscellany a leaflet which urges physicians to lay aside their prejudices against patent medicines. Various arguments are set forth to show that the medical fraternity would be aiding its patients and itself by co-operating with the makers of proprietary remedies.

Who, think you, is behind this particular bit of propaganda? You might guess several times before you hit it right: the makers of glass jars and bottles! The source being discovered, the connection is easily seen. If the physicians would prescribe proprietary medicines, instead of those specially compounded by the apothecary, glass bottles would be more in demand.

Unfortunately for the nostrum makers, the average physician is not inclined to prescribe their products, regardless of how efficacious he may believe them to be. His patients come to him with the expectation of individual attention. They would be disappointed if he handed them a prescription in plain English, bearing the name of an article already packaged for them on the druggist's shelf. The physician is a dealer in made-to-measure, not ready made. There's the nib of the difficulty.

We especially commend to physicians the thought-provoking sentence: "The physician is a dealer in made-to-measure, not ready made." There is text for a sermon here.—*J. A. M. A.*, Oct. 28, 1922.

THE REACTION OF BOSTON TO THE "REACTIONS" OF ABRAMS

A few weeks ago the editor of the *Boston Medical and Surgical Journal* pointed out the fallacies of Albert Abrams' claims and the absurdities of his cult. Then Abrams came to Boston and was given an opportunity to lay his cards on the table, face up. The *Boston Medical and Surgical Journal* reports editorially in its issue of October 19 the results of Abrams' visit. On Monday, October 9, Abrams appeared before the Board of Registration in Medicine in an informal hearing. The opportunity had been given a representative of the "electronic" cult to inspect the room and arrange for proper wiring so that Abrams could give a demonstration of his method. When the meeting came to order, however, Abrams said that it was impossible for him to give a demonstration at that time. His followers then started to hold an "experience meeting," detailing the marvels they had wrought. Naturally, the chairman of the Board of Registration in Medicine refused to permit the meeting to be turned into an advertising "stunt," and the meeting was adjourned. The day following Abrams gave a clinical demonstration of his method in the laboratory of one of his disciples. Our Boston contemporary points out that, by a remarkable coincidence, while Abrams' followers in the rear of the room were able to see and hear the reactions claimed by Abrams, those members of the Massachusetts Medical Society who occupied chairs close to the demonstration, could neither see nor hear them. Abrams, it is said, refused to submit the method to any test offered, but confined himself to demonstrating the presence of lesions "the existence of

most of which could be proved only by post-mortem examination." A member of the staff of the *Boston Medical and Surgical Journal*, a man in perfect health, was selected for experiment. By his diagnostic methods, Abrams discovered in this healthy individual a streptococcus infection, tuberculosis of the intestinal tract, congenital syphilis and intestinal sarcoma—otherwise the man was all right! It is understood that the volunteer inconsiderately refused to submit to a post-mortem examination. The *Boston Medical and Surgical Journal* declares that Abrams' visit to Boston disclosed two outstanding facts: First, the man persistently refused to submit his methods to tests that could be scientifically controlled or to give a demonstration under conditions that would be subject to the usual rules of scientific criticism; second, in the one case in which he did demonstrate his method, he found syphilis, tuberculosis, sarcoma and streptococcus infection in a healthy individual. As the *Journal* points out, if Abrams can diagnose disease where no symptoms exist, he certainly should have been willing to submit to a test based on the diagnosis of blood specimens from patients with definite ailments. The fact that Abrams refused to perform such tests speaks more eloquently than any critic. Abrams, it is said, claims that his electronic reactions are either the greatest miracle of the age or the greatest fake. Here we have a point of agreement with Abrams—the electronic reactions are no miracle.—*J. A. M. A.*, Oct. 28, 1922.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL, FOR 1922

(UNDER THIS HEAD WE LIST THE SOCIETIES WHICH HAVE PAID THE STATE ASSESSMENT FOR ALL THEIR MEMBERS)

Benton County Medical Society, Oct. 21, 1921.
 Montgomery County Medical Society, Dec. 15, 1921.
 Chariton County Medical Society, Dec. 23, 1921.
 Webster County Medical Society, Dec. 27, 1921.
 Clark County Medical Society, Jan. 13, 1922.
 Reynolds County Medical Society, Jan. 17, 1922.
 Camden County Medical Society, Feb. 8, 1922.
 Schuyler County Medical Society, Feb. 10, 1922.
 Perry County Medical Society, Feb. 13, 1922.
 Vernon County Medical Society, March 24, 1922.
 Pulaski County Medical Society, March 31, 1922.
 Atchison County Medical Society, March 31, 1922.
 Laclede County Medical Society, April 1, 1922.
 Christian County Medical Society, May 9, 1922.
 Oregon County Medical Society, May 29, 1922.

PROCEEDINGS OF THE WASHINGTON UNIVERSITY MEDICAL SOCIETY

Ninety-First Meeting, November 13, 1922

1. PRESENTATION OF CASES.

A. SCURVY.—By DR. L. J. EVANS.

This case is presented because of the rarity of this condition in older children. The patient is 12 years old, has always lived in a rural community. The first attack, three years ago, with fatigue, pain in hips and knees, and ecchymotic spots on legs and ankles. Patient was unable to walk for nine months, after which recovery was very slow, the fatigue symptoms persisting for some time. Patient had a second attack 16 months ago characterized by pain and swelling of legs and hemorrhages in

gums. For the past few months she has eaten nothing but chocolate candy, then lemon pie, then ice cream. She has always exhibited such a peculiarity of diet and has never eaten green vegetables or fruits. On examination she presented petechiae of left forearm, hemorrhages in gums, marked beading of costochondral junctions, wasting of upper extremities and edema and joint deformities of lower extremities. RBC 2,200,000. X-ray of extremities showed atrophy of all the bones, erosion and almost complete destruction of the head of each femur, excessive calcium deposit in epiphyseal lines and telescoping fractures of lower end of tibiae. Around the lower end of each femur there is a thickening which may be areas of calcified hemorrhage. The most striking thing was the extensive edema of the lower extremities and the extreme pain when the child was moved. The symptoms have improved gradually but steadily since admission to the hospital where the diet has been rich in vitamins. At present the bony deformities are being overcome by orthopedic measures and the symptoms of pain and edema have disappeared.

DISCUSSION

Dr. Barney Brooks: I saw this case when it was brought into the hospital. It serves to bring out the point that there is at the present time a great deal of work being done on so-called "vitamins," or the effects of food deficiency. There are many points of interest in the case of this child. That it has food deficiency manifestations is a matter beyond all question. I doubt very seriously if we are telling the whole story in this case by reporting it as scurvy. Most of the changes which occurred in this child can be readily explained on the basis of lack of function. The extreme atrophy, the thickening of the cortex, the diminution in the size of the chest, and the relative increase in the size of the epiphyses, all indicate lack of function during the growing period. I have been unable to see evidence in this particular case of subperiosteal amyosthenia. There is in the upper ends of the femur actual extensive bone destruction. There was a marked febrile reaction. I am, therefore, of the opinion that the patient has mixed up in her condition a certain amount of infectious element, and I wonder if—after some years of work on diseases resulting from food deficiency, we may not come to the conclusions that in cases that we now call scurvy, rickets, osteomalacia, we are not, perhaps, speaking of one and the same process in all these various phenomena.

B. DIABETES.—By DR. A. F. HARTMAN.

This case is shown as one of total diabetes in an infant 20 months of age, which at the present time is at the St. Louis Children's Hospital and is being treated successfully with the pancreatic extract, "Insulin." The infant was well until one year of age, when the symptoms of diabetes, polydipsia, polyuria, and loss of weight were noticed. The child went down hill and was 17 months old when sugar was first found in the urine. Moderate restriction of the carbohydrate intake did not seem to diminish the glycosuria. Weight loss continued, acetoneuria developed and at 18 months of age the infant was brought to the hospital in diabetic coma. The blood sugar at this time was .305 per cent. The plasma bicarbonate was 20 vol. per cent. Intravenous injection of bicarbonate solution relieved the air hunger and brought the plasma bicarbonate to almost the normal figure. The patient was starved for four days. During the first twenty-four hours he ex-

creted 24 grams of glucose in the urine and 2 liters of organic acid. At the end of the fourth day, he was still excreting 6 to 12 grams of glucose and 300 to 500 c.c. of organic acid. Food was given in the form of curds of milk (chiefly fat and protein). A study of the carbohydrate intake and the nitrogen and glucose excretion convinced us that the patient was burning no glucose whatsoever. Insulin treatment was then started, the pancreatic extract being made in Dr. Shaffer's laboratory in the Department of Bio-Chemistry, Washington University Medical School. Injections were given subcutaneously and diminution first in the ketosis, then in the glycosuria, was noted. Co-incidentally the blood sugar fell. The infant's diet was gradually increased until a well balanced diet was given without ketosis, and with negligible glycosuria. Insulin at first had to be given every 12 hours. It was found that one rabbit unit took care of approximately 2-3 grams of carbohydrate. The patient's condition is now improving and he is gaining weight. At the present time, after 6 weeks of insulin treatment, his tolerance for carbohydrate has risen to 35-40 grams for 24 hours. Insulin therapy has been discontinued for the last four days without the return of ketosis. The amount of glucose excreted in 24 hours is only 2-4 grams, despite the fact that the carbohydrate intake is 43 grams.

C. ENLARGEMENT OF THE SELLA TUNICA WITH CHORIORETINITIS.—

By DR. A. D. CARR.

J. P., male, age 39.

Chief Complaint.—Inability to see anything with the right eye, and failing vision left eye.

Family History.—Unimportant.

Past History.—Unimportant aside from a history of a chancroid infection nine years ago.

Present Illness.—Condition was noticed five years ago as failing vision in the right eye. This gradually progressed until the patient is now totally blind in the right eye. About one and one-half years ago patient first noticed failing vision in the left eye which has been slowly progressive. There has been no headache or other symptoms of increased intracranial pressure.

Physical Examination.—Practically entirely negative.

Neurological Examination.—Negative aside from the fundus examination which reveals a secondary optic atrophy on the right, a bilateral chorioretinitis and a cataract on the left. Erythrocytes 4,200,000, leucocytes 7,200.

Examination of stained blood smear revealed 67 per cent. P.M.N.'s and 30 per cent. lymphocytes.

Urine negative.

Blood pressure 115/75.

P. S. Phthalein 1st hour 45 per cent., 2nd hour 20 per cent. equals total 65 per cent.

Lumbar puncture revealed 1 lymphocyte per cu. mm. Negative globulin. Negative Wassermann reaction.

Basal metabolism was 9.7 per cent. decreased.

Sugar tolerance test gave the following results:

1. .098 gms. per 100 c.c. blood.
2. .159 gms. per 100 c.c. blood.
3. .168 gms. per 100 c.c. blood.
4. .056 gms. per 100 c.c. blood.

Stereoscopic Plates of Skull.—Skull is symmetrical, rather small. Sella is enlarged, principally in antero-posterior dimensions, but its floor encroaches on the sphenoid antrum. The dorsum is bent backward and increased in sections. There is an area of increased density in the sella.

X-ray diagnosis: Pituitary enlargement from intrasella pressure.

The case is presented on account of the diagnostic difficulties it has offered and especially on account of the difficulty in arriving at a decision as to what disposition should be made of it from a therapeutic point of view.

DISCUSSION

Dr. L. B. Alford: I might discuss this case by asking a question: What is the objection to operation?

Dr. Carr: The reason for objecting to operation in this case has been that the ophthalmologists interested do not believe that removal of the cataract would improve the vision in view of the chorio-retinitis present. Then from a neuro-surgical point of view, bearing the report from the ophthalmologists in mind and no other symptoms of increased intracranial pressure, interference is not indicated as such X-ray findings as regards the sella are not infrequently found accidentally.

D. CASE SHOWING UNUSUAL ELECTROCARDIOGRAM.—By DR. BARKER.

Salesman, aged 64, admitted to Barnes Hospital, Neurological Service, October 6, 1922; discharged October 25, 1922. History of primary syphilitic lesion in youth. Recent headaches and loss of memory. Apparently no cardiac symptoms. Has had irregular antiluetic treatment. Ventricular extrasystoles and frequent auricular extrasystoles noted in dispensary in February, 1920. Physical examination shows irregular, sluggish pupils, hyperactive right knee jerk, and a heart moderately enlarged to the left, slightly wide at the base, with loud systolic murmurs at the apex and aortic area, rate 60 per minute, rhythm a bigeminy. Blood and spinal fluid Wassermanns negative.

Electrocardiogram shows a "P. R." interval of 0.17 sec., "Q R S" 0.08 sec., rate 60 per minute, marked left ventricular preponderance, and bigeminy due to the rhythmic occurrence of auricular extrasystoles early in diastole. The "P" waves are fairly uniform in contour, showing the origin of the premature beats to be near the region of the sino-auricular node. There is considerable aberration in the form of the ventricular complexes of the premature beats. The "T" waves are inverted in the premature beats of the first lead and in the normal beats of the third lead; they are upright elsewhere.

Exercise increases the rate from 52 to 64, and accentuates the aberrant form of the ventricular complexes of the premature beats. This is evidence of defective conduction in the right bundle branch. Atropine abolishes the auricular extrasystoles without increasing the heart rate. The auricular extrasystoles are replaced by beats originating in the auriculo-ventricular node. The nodal beats, however, occur exactly halfway between the normal beats, giving a regular rhythm, or sometimes just a little later than halfway between the normal beats. This may be interpreted as showing a slow sinus rhythm with a rhythmic escape of the auriculo-ventricular node in each of the long intervals between the sinus beats.

Amyl nitrite inhalation produces the same effect, but also increases the heart rate from 52 to 72 per minute and causes an arrhythmia of sinus origin. The patient was not given digitalis.

E. DYSOSTOSIS CLEIDOCRANILIS.—By DR. OTTO KREBS and DR. R. J. TERRY.

Patient, aged twenty-eight, colored, entered the obstetrical out-patient department in May, 1922, when about fourteen weeks pregnant. Patient married

first time at age of thirteen years; no children by this husband. Married again at the age of twenty-two years; five pregnancies by the second husband, including the present one. The first pregnancy resulted in a stillborn child, born at term. Second pregnancy, a full-term child, now living, six years of age. The third pregnancy, a dead fetus delivered at twenty-eight weeks' gestation. The fourth pregnancy stillborn child at term. All labors spontaneous.

The family history is unimportant. The mother is living; the father died when the patient was quite young. The patient states that her features resemble her father.

Past History.—Patient was a full-term child, spontaneous delivery; sat up, walked, talked at the usual times. Usual childhood diseases; no sequelae. In 1919 had paralytic stroke. Began with pain in teeth, jaw drawn to left side, legs and arms unaffected. Improved gradually. In 1920 had another attack associated with severe headaches, face drawn to right side, difficulty in eating and speaking. No history of any thyroid enlargement. Had sore on genitals in 1914. Wassermann reaction positive in 1919. Treated in skin clinic in 1919 and 1920, and during present pregnancy. Menstruation always regular of the 28-3 day type; scant flow without pain.

July 26, 1922, patient sent to hospital from obstetrical clinic because of high blood pressure. Under eliminative treatment, bed rest and diet regulation, blood pressure dropped from 176-108 to 135-82, and patient was discharged.

September 23, 1922, entered hospital again with blood pressure 200-130 and was threatening to go into labor. Within a week, blood pressure reduced to 185-120 by eliminative treatment. Impressions at this time were: peripheral 7th nerve palsy, right and left, hypertension, C. N. S. lues, aortitis (?), nephritis, chronic interstitial, and pregnancy.

October 21, 1922, admitted for the third time with a blood pressure of 210-150. In view of the fact that child was viable and patient not responding particularly well to expectant treatment labor was induced October 23, 1922, by the introduction of bougies, later by the introduction of a Vorhees bag. After complete cervical effacement and dilatation, delivery by version and extraction was attempted, the straining efforts of the patient during the second stage being contraindicated by her hypertension. No difficulty was experienced until shoulders were to be delivered. The right arm was extended at the shoulder, flexed at the elbow and lay behind the neck between the mother's symphysis and the fetal head. The left arm was delivered posteriorly without great difficulty, but prolonged effort was necessary to rotate the right shoulder before the arm could be delivered. No trouble was experienced in delivering the head. The child was born asphyxiated and with a scarcely recognizable heart beat, but responded to artificial resuscitation and lived. The child weighed 2,920 grams, and immediately after birth a fracture of the right clavicle was noticed, some irregularity of contour at about the middle of the left clavicle, but no fracture could be demonstrated. The fontanelles were very large and the sagittal suture at least 3 cm. across. The second day the child showed signs of intracranial hemorrhage and after spinal puncture revealed blood, an exploratory craniotomy was done after the Simmons' technique, but no hemorrhage was found over either cerebral hemisphere. Child was treated by subcutaneous injections of maternal blood and there was no apparent further hemorrhage. The spasticities gradually disappeared along with the coma. The child was discharged with the mother after twenty days—the mother with a blood pressure of 180-140, albu-

men and a few casts in the urine; the child, nursing the breasts and gaining weight.

Infant and mother present certain anatomical defects recognizable by superficial examination and by X-ray which are characteristic of cleido-cranial dysostosis as described by Marie and Sainton and by Hultkranz. Briefly the conditions are a rather large rounded cranium, persistence of great fontanelles, especially the metopic, giving the forehead a natiform contour; large square orbits widely separated, defective zygomatic arches, retarded eruption of teeth; defect of both clavicles, ununited vertebral laminae. The bones are generally very porous, but on the contrary some are very dense. Stature is usually under the average; proportions in certain regions, infantile. Tendency to scioliosis. Cleido-cranial dysostosis is hereditary, the treat being transmitted by either parent. In the present case the defect in the mother was discovered following the observation of the condition in the infant. Use of the defective arm is not greatly reduced; trapezius and sternomastoid muscles serving to support the clavicle.

The case is presented because of its rarity, of the interesting morphological questions raised and because the defects which are carried along from one generation to another are such as call for medical or surgical treatment.

2. PERIVASCULAR SYMPATHECTOMY.—By DR. E. P. LEHMAN.

Leriche in 1913 first proposed the operation of perivascular sympathectomy for the relief of various conditions in the extremities presumably the result of disturbances of the peripheral sympathetic, such as causalgia. The procedure consists in the stripping off of 10 to 15 cm. of the adventitia of the artery to the diseased part—brachial or femoral—with the intention of removing the sympathetic plexus therein contained. The first result of this is said to be a local constriction at the level of the operation with resulting anemia of the part. After fifteen hours there is established a hyperemia with increase of local temperature, blood pressure and pulse pressure. In numerous case reports he records cases improved by this treatment as well as clinical observations of the physiological changes described.

Inasmuch as our anatomical knowledge does not support the theory that a local resection of the perivascular sympathetic can cause these physiological results, experiments on the dog are reported showing the absence of these phenomena, which could be induced by proved removal of the sympathetic supply as in classical experiments.

Leriche has also observed remarkable results from his operation in the healing of chronic ulcers following nerve injury and the stasis of venous varicosities. He mentions experimental work on the ear of rabbits in which wounds healed more rapidly when the sympathetic supply was removed. These experiments were also repeated with negative results.

It must be recorded also that other clinical observers are not unanimous in the support of Leriche.

DISCUSSION

Dr. H. S. Gasser: Dr. Lehman in his conclusions has made the statement that the findings of Leriche cannot be demonstrated in the dog. This being the case it seems to me that one should be rather conservative in accepting Leriche's theory as to the result of stripping an artery in man. It would seem to be highly opportune that this interesting finding has been investigated. It strikes one at once, as Dr. Lehman has pointed out, that, in-

asmuch as it is known that the nerves of the artery at different points along its course have not run far in its wall, it is extremely hard to explain any general dilatation of the limb from a local injury to the adventitia of the artery. As I gather from Dr. Lehman's paper, the outstanding objective finding of Leriche is vasodilatation in the limb. This could occur through two mechanisms, the principal mechanism being depression of the vasoconstrictor center, operating through the sympathetic innervation, the other being a less well understood mechanism which operates presumably over the posterior root of the spinal nerves. I believe I am correct in saying that we are not familiar with findings which make us think that the conditions are otherwise in man than they are as determined in the laboratory, and therefore I would like to ask Dr. Lehman if it is not wise to suppose that Leriche's findings in man are to be attributed to some other mechanism entirely than to one of the normal nervous mechanisms for vascular dilatation.

Dr. Barney Brooks: What I want to bring out in connection with Dr. Lehman's paper is the fact that it is an effort in an unusual and neglected field in surgery. Our dispensaries are filled with cases of chronic ulcerations, of various forms of arterial blockings, deficient circulation, red, swollen, painful extremities, a large number of varicose ulcers, a considerable proportion of chronic edemas, ulcerations following pelvic cellulitis, milk leg, etc., and insofar as I can see, we do not understand what to do for these patients. They return to the dispensary day after day, month after month, and year after year, to have dressings put on. In these arterial diseases, persons go on for years, and then have the limb cut off. This is really a very much neglected field in surgery, therefore every effort that is made to improve these patients is well worth while. Leriche has given his observations along these lines in many publications. I have followed them rather closely and feel very much as Dr. Gasser feels, that they are far from convincing. One point which Leriche has particularly stressed is that it is a very much more serious thing to tie an artery than to cut it—this referring to one of the primary arteries in the extremities. Leriche says that the circulation is much better after the artery is doubly ligated and completely divided by the ligatures; that such a procedure, in other words perivascular sympathectomy, makes the circulation in both legs very much better. It is clear that if that were true, it would be far from wrong to consider the circulation which is vascularly borne to the limbs responsible for the circulation which is furnished by the vessels proximal to the ligatures, and sympathectomy would have to exercise an influence on the collateral circulation from the branches proximal to the ligatures in order thus to influence the circulation. I can also verify Dr. Lehman's observation on the local effects of perivascular sympathectomy. We have been interested in circulation problems ourselves for some time, and I should hesitate to say how many arteries we have cut and tied, and yet have never seen the slightest influence on the circulation distal to interference with the vascular sheath. Whether cutting, or stripping, or whether the arteries were ligated within the sheath, I do not believe I can agree with Leriche's observation. I do not believe that his observation on wound ligation is evidence of particular importance, because if sympathectomy would have produced a healing beyond normal, there is not very much evidence of tissue being permitted to heal beyond the rate at which it progresses in normal healthy tissue.

Dr. E. P. Lehman: I agree with Dr. Brooks in all but one particular. We have considerable evi-

dence from an internationally recognized observer, with rather detailed clinical studies in addition to records of experimental work along these lines. It seems to me, therefore, that it is perhaps rather better to say that we cannot reproduce the experimental work and cannot see the theoretical basis for Leriche's findings than to challenge the observations directly. I think Dr. Gasser has sufficiently answered his own question in his interesting discussion.

3. PATHOGENESIS OF DEMENTIA PRECOX.—By DR. LELAND B. ALFORD.

The nature of the pathological process in dementia precox, the commonest of the mental diseases, is still a matter of doubt. Pathological changes in the brain have been described, but owing to their mild character have failed to carry conviction of their validity. Heredity occurs in from 30 per cent. to 90 per cent. of cases of dementia precox, depending on the criterion of antecedent disease. Infection, pregnancy and other common processes occasionally seem to act as exciting factors, but are not fundamental causes.

One may learn a great deal as to the nature of the pathological process in dementia precox by comparing it with other conditions of apparently similar nature in which the process may be less obscure. Considering the causeless origin and subsequent progression in dementia precox, we have apparently valid analogies in the hereditary or progressive degenerations (abiotrophies of Gowers), of which, according to Bing, there are some eighty types affecting the nervous system alone. The most common of these are the progressive muscular atrophies and dystrophies, amyotrophic lateral sclerosis, otosclerosis, progressive optic atrophy, paralysis agitans and Huntington's chorea. Examination of these conditions reveals that the pathological process is highly selective, in each type picking out one or a few functions for exclusive attack and ceasing to advance after these have been destroyed. Pathological changes are obvious only in those types involving lower levels and are obscure in those which, like paralysis agitans, and Huntington's chorea, have their localization in the brain.

By virtue of its obscure etiology and progressive nature, dementia precox is assumed to be one of these progressive degenerations, having its localization in the brain. Analysis of the symptoms has led psychiatrists to believe that the primary function affected is objectively slight but psychologically so essential as to lead to mental breakdown and the formation of the conspicuous symptoms such as hallucinations and delusions. That pathological changes seem to be slight is due to the scattering of the affected structures through the myriads of cells and fibers of the brain. Since memory and other mental functions are unaffected, it is likely that the function destroyed in dementia precox is also of unitary nature.

In treatment, therefore, there is always the possibility of reducing the symptoms down to those resulting from the function destroyed, and prevention lies primarily in eugenic measures.

4. ADENOIDS AND THEIR REMOVAL WITH A DIRECT VISION ADENOTOME.—By DR. I. D. KELLEY, JR.

Since Wilhelm Meyer's discovery of adenoids in 1873 their removal has been a most unsatisfactory problem in surgery, because it was impossible to place the adenoid in the direct vision of the operator. Various instruments have been devised for their re-

moval, as the Gottstein, Beckmann, Hartmann currettes, forceps designed by Jurasz, and the nasopharyngeal tonsillotome of Schuetz-Passow and La Force, all of these employing the blind technic. Recently the soft palate has been retracted by means of the catheter, giving only partial direct vision, and the adenoid removed with the Gottstein currette.

Adenoids have a definite location on the posterior nasopharyngeal wall. When adenoids are found to fill the post-nasal space, I feel it is by mass extension rather than by proliferation of their basal attachment.

All previously existing methods of adenoid removal were surgically unsatisfactory because of the difficulty of developing a blind technic, and often caused severe injuries to the nasopharynx and adjacent structures.

To make this operation surgical it was only necessary to overcome the superstition that the adenoid could only be reached by means of an obtuse angle. Cadaver and human experimentation have proven beyond the question of a doubt that the adenoid can be brought into the vision of the operator in a direct line. The direct vision adenotome that I have constructed working on the direct-line principle not only removes the adenoid under the direct vision of the operator, but overcomes all of the untoward accidents and complications resulting from the use of previously devised instruments.

Technic.—Under local or general anesthetic the mouth is widely opened with a gag, the distal or hood end of the adenotome inserted in the mouth, the tongue depressed with its under surface. It is passed backwards until it assumes a position behind the border of the soft palate. The instrument is then gradually raised until it passes into the nasopharynx, the palate automatically is drawn forward along the upper surface of the hood, the hood is then raised into the nasopharynx until the adenoid is in complete vision of the operator, the instrument is then pushed gently against the posterior wall surrounding the adenoid, and the blade by means of the approximal thumb plate is pushed home, thus severing the adenoid from its post-nasal attachment. The instrument is then removed and the adenoid is found inside the hood, which now forms a cup.

The instrument has been used in some one hundred and fifty cases by several operators with entire satisfaction, the adenoid being completely in view of the operator at the time of removal. No untoward results have been observed following the operation and careful post-nasal examination has revealed that the adenoid has been completely removed.

DISCUSSION

Dr. Barney Brooks: Surgery is always interested in anything that cuts. Dr. Kelley has just described an instrument the importance of which is that it enables the operator to operate under direct vision; that is, to work to the greatest advantage. It is rather interesting also that these "angles" have delayed the method of examination in other places than in the nose. For instance, urethral catheterization was not done in males until many years after it had been practiced in females for the reason that nobody thought that a straight instrument would go into a male urethra. Another advantage of Dr. Kelley's instrument needs further emphasis: it is not only an instrument of operation, but apparently an instrument of examination as well. He has also brought out another point, which is, that an indication for the removal of adenoids is certainly first and foremost the adenoid, and this instrument gives that opportunity.

Dr. Wm. L. Hanson: Dr. Kelley has been kind

enough to teach me some phases of the technic with his adenotome in the nose and throat clinic. In regard to injuries of the posterior pharyngeal wall and osseous tissue of the cervical vertebra, I wish to state that unfortunately this sometimes occurs under the usual technic. Dr. Arbuckle feels that great care must be taken in using the direct vision adenotome so as to avoid injury to the soft palate. In the cases I have seen there was no injury to the palate, although considerable pressure was used at times. With direct vision technic adenoidectomy may be done before or after tonsillectomy. I believe that Dr. Kelley's instrument does remove the adenoids en masse and completely because in all of the cases I have examined after the operation there were absolutely no remnants.

One mechanical fault with the instrument is that when the blade is forced home it meets a flat surface instead of a groove, resulting in a dull blade after several operations. I would also suggest that the blade be made of heavier material as in one case I saw it buckled and forced through the fenestrum of the instrument.

Dr. I. D. Kelley: I am going to endeavor to answer the question of what is meant by the term "adenoids." I speak of the tissue removed in the adenoid operation as "adenoids" because the mass that is removed is practically always well organized—simply a mass. This mass removed at operation can be called "adenoids" because there is no possibility of differentiating it into other than lymphoid or adenoid tissue. On the other hand, we might call attention to Waldeyer's ring, or to that ring of lymphoid tissue composed of the lingual tonsil, the lymphoid bridge connecting it to the faucial tonsil, the posterior lymph columns, and the nasopharyngeal tonsil, together with the scattered lymph patches on the posterior wall. Any lymphoid mass in the nasopharynx that has not been definitely named might be included under the term "adenoids." Technically, when I speak of "adenoids," because of this absolute direct vision technic of adenoid removal and because under direct vision we have established the location of this definite mass of tissue, I feel that the nasopharyngeal tonsil and the adenoid are synonymous. If we embrace all lymphoid tissue in the nasopharynx under the term of "adenoids," we would then not only include the lymphoid tissue in Rosenmueller's fossa, which is the prolongation upward of the posterior lymph columns, but also the isolated small lymph patches on the posterior pharyngeal wall as well. We are getting very technical, indeed, and should, therefore, say that adenoids are the nasopharyngeal tonsil, plus the posterior lymph columns, as well as the posterior pharyngeal lymph nodes. This term cannot include all these structures. Examination of the adenoid specimens removed correct such a conception, because when we remove the nasopharyngeal tonsil, or adenoids, the nasopharynx is perfectly clear of obstruction. Dr. Hanson mentioned that there had been skepticism in regard to injury of the soft palate. I say, however, that when this instrument is in place with the upper border of the hood lodged against the posterior superior septal border at its junction with the roof of the nasopharynx, no injury can be done to the palate if unnecessary force is not used.

Now, as far as pushing the blade home is concerned, the fact that the sharp edge of the blade does not fit into a groove when the adenoid is severed from its attachment is an error of construction due to an oversight on the part of the instrument maker.

SOUTHEAST MISSOURI MEDICAL SOCIETY

The Southeast Missouri Medical Society held its forty-sixth semi-annual meeting at Farnfeld, October 17, 18 and 19. The regular place of meeting (selected at the spring meeting held at Fredericktown) was to be Farmington, but out of respect to the memory of Dr. W. S. Hutton, a valued member of the Society who was drowned in the Mississippi River while trying to rescue his son, the place of meeting was changed to Farnfeld.

The opening session was held Tuesday evening, October 17, with a mixed program of addresses of welcome by the citizens of Farnfeld, some delightful music and readings, followed by a general smoker.

The regular scientific program began at 8:30 a. m., Wednesday, in the American Legion Hall, which was very kindly tendered for the use of the Society. About fifty officers and members were present.

Program

1. Dr. G. W. Vinyard, of Jackson, opened the program with a paper on "Flotsam and Jetsam." Discussion by Drs. Hamel, Reid, Cannon and Goodykoontz.

2. Dr. W. K. Statler, Oak Ridge, read a paper on "Psychic Influence in Medicine." This was discussed by Drs. Hamel, Rowe, Cannon, Goodykoontz and Vinyard.

3. Dr. A. H. Hamel, St. Louis, presented "Case Reports on Primary Carcinoma of Lung and Perforating Post-Gastric Ulcer," and "Spinal Trauma and Rarification of Right Femur." Discussed by Dr. Statler.

Afternoon Session

Dr. W. F. Grimstead, Cairo, Ill., reported "Seven Prostatectomies from My Own Clinic." Discussed by Dr. Neil Moore.

The scientific program was suspended on account of a special memorial service for Dr. W. S. Hutton. This service, held in conjunction with the citizens of Farnfeld and Ilmo, was a splendid tribute to the memory of Dr. Hutton who had been a prominent and very active member of the Society. Dr. Goodykoontz presided as chairman, and many splendid addresses were made by various members of the Society, all testifying to the high regard in which Dr. Hutton had been held by the profession, his friends and fellow-citizens of Farnfeld and surrounding country. A great concourse of laymen and women joined with the members in thus honoring his memory. At the close of the service resolutions of respect were presented by a committee in the name of the Society, and copies ordered to be spread upon the minutes and presented to the bereaved wife and mother.

At four o'clock case reports were made by Drs. Hamel, Sebastian, Frazier, Statler, Vinyard, and others.

Night Session

1. "Surgery of High Rotated Cecum," by Dr. W. H. Westcoat, Oran. Discussion by Drs. Hope and Rowe.

2. "Symptoms, Diagnosis and Treatment of Stone in the Upper Urinary Tract," by Dr. Neil Moore, St. Louis. Discussion by Drs. Schultz, Hamel, Statler, Rowe.

3. "Intestinal Obstruction with Report of Cases," by Dr. G. E. Schultz, Cape Girardeau. Discussion by Drs. Hamel, Statler, Cannon.

4. Councilors' reports.

Dr. C. G. Slaughter, of Fredericktown, was elected Corresponding Secretary.

Cape Girardeau was selected as the place for the spring meeting.

The committee on necrology presented the following resolutions on the death of Dr. W. S. Hutton, former Corresponding Secretary of the South-east Missouri Medical Association:

Your committee appointed to draft resolutions in memory of the late Dr. W. S. Hutton, beg leave to submit the following:

WHEREAS, Dr. Hutton was a member of the South-east Missouri Medical Society so distinguished in many ways that his death has created a vacancy in our ranks of no ordinary kind, and

WHEREAS, Now that he has gone we are the more conscious of his extraordinary character—a model of punctuality in his dealings here; thoughtful and considerate in all he said and did; dignified yet courteous, and his convictions hard to sway, and

WHEREAS, Dr. Hutton has left behind him an honored name, valued more than all else. Therefore, in order to perpetuate the recollection of his extraordinary virtues and abilities as a member of this Society, be it

Resolved, That the loss sustained by the South-east Missouri Medical Society, in the death of Dr. Hutton, is deeply felt and lamented by the members of this Association;

Resolved, That his social virtues and personal demeanor rendered him an example worthy of imitation;

Resolved, That these resolutions be spread upon our records, and a copy be presented to his bereaved widow and mother, with the sympathy of his fellow-members.

W. R. GOODYKOONTZ, Chairman,
T. R. FRAZIER,
J. P. SEBASTIAN,

Committee.

On motion the report of the committee was adopted by unanimous vote.

W. S. LOVE, M.D.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in regular session at the Snapp Hotel, Excelsior Springs, Monday, October 30, at high noon. Twenty-eight, including members, their wives, and visitors, sat down to Hallowe'en Dinner which had been previously arranged under the supervision of Mrs. Snapp. The effect of the beautifully decorated table was most charming, nothing being left out that was fitting to the season. The profusion of gloriously tinted autumn leaves and the smiling-faced images, deftly carved out of our justly famous monarch of the vine, did not in the least interfere with the bountiful feast nor with the gracious details of the well-known Snapp service.

The menu, beginning with the succulent bivalve, led on and on into the mazes of culinary art and excellence, finally winding up with pumpkin pie and cider. Read of it, ye absent members, and gnash your teeth! Allow me to add a testimonial: Dr. Suddarth, with his usual attention to technique, declared after tasting the pie and cider, "Boys, she's genuine!"

After dinner the ladies were chaperoned to a local theater while the scientific session rolled up its sleeves and got busy. The theme was "Symposium on Differential Diagnosis, with Reports of Cases."

Dr. C. H. Suddarth, by special invitation, led this program. Dr. E. H. Miller presided, our chairman, Dr. Hill, being absent. The varieties of spinal sclerosis, with symptomatology and distinguishing features, held the meeting till the hour of adjournment.

It is indeed difficult to account for that phase of medical psychology which ignores the County Medical Society, the very foundation of medical solidarity.

Our next meeting will take place at Liberty in December, at which time officers for the ensuing year will be elected.

J. J. GAINES, M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in regular session on Wednesday afternoon, October 11, at the residence of Dr. J. R. Hampton, president, Shawnee Mound. Members present were: Drs. S. A. Poague, R. D. Haire, E. G. Peelor, G. S. Walker, J. G. Beaty, R. J. Jennings, J. Walton, T. A. Blackmore, E. Y. Pare, President Hampton and Secretary Douglass. Dr. Frank I. Ridge, of Kansas City, and a friend were visitors. By request Dr. Peelor acted as chairman. The minutes of the previous meeting were read and approved.

Dr. R. D. Haire, in a talk, related his experience in visiting the hospitals and clinics in Europe—Berlin, Munich and Rome—and told of work he saw, their instruments and sanitation. He said that in cleanliness and care our hospitals were ahead of those he had visited. They use local anesthesia more often than we do. He had seen some fine operations on the throat and eyes that were instructive. All present were pleased with the lecture.

Dr. Ridge then gave us his views of the latest thought in care and prevention of tuberculosis, telling us what persons were immune, and who most susceptible; what he had learned in making over 300 autopsies in Jackson County; about the number who had had it; that nearly all appendices and thyroids showed signs of it. He believed that rest, good care and cheerfulness, little medication, and proper food were the best treatment.

Dr. Walton opened the discussion by claiming that cheerfulness and rest under the guidance of a physician at home was better than going away.

Dr. Blackmore said he did not send any one away; that all did better when among their families and friends than to go among strangers; that if they did go they could not come back to stay.

Many questions were asked Dr. Ridge who answered promptly. The ladies were invited to hear this talk and discussion. The following ladies were present: Mesdames J. W. Walton, E. C. Peelor, E. Y. Pare, T. A. Blackmore, R. J. Jennings, G. S. Walker, J. G. Beaty; Mrs. Hampton and daughters.

Mrs. R. D. Haire gave her impressions of the cities she had visited while away with the Doctor. She told of the many beautiful and interesting things she had seen, and gave a short history of the places—Rome, Milan, Venice and Naples—with the pleasing incidents that occurred. The ladies enjoyed this talk as much as their husbands, the doctors, did, and it was great.

Dr. Blackmore made a motion that Dr. F. M. Douglass be elected honor member and secretary of this Society; seconded and carried unanimously.

It was decided that the regular election of officers, including acting secretary, be held at the next meeting.

Then it was that Mrs. Hampton took charge of

the meeting and furnished refreshments that were very acceptable.

F. M. DOUGLASS, M.D., Secretary.

The Henry County Medical Society met in regular session at the office of Dr. R. D. Haire, Wednesday evening, November 8. Members present were Drs. R. D. Haire, J. R. Hampton, W. R. Campbell, E. C. Peelor, G. S. Walker and F. M. Douglass. The meeting was called to order by President Hampton at 8 p. m. and the minutes of the previous meeting were read and approved.

Dr. W. R. Campbell gave a talk on "Cancer," reading instructions from the state committee and spoke of his appointment as chairman of this district, telling what was to be done during Cancer Week. He also passed out some literature on the subject.

Dr. E. C. Peelor, giving his impressions of medical education and what it costs in time and money at the present time, said it was too expensive for a poor boy, causing him to slip into the cults.

Dr. G. S. Walker talked of eclampsia, giving a short history of the subject and treatment and of the cases he had treated successfully with large doses of tincture veratrum. Drs. Haire, Hampton and Peelor discussed diseases and treatment.

Election of officers resulted in making Dr. Wm. R. Campbell, president; Dr. Robert J. Jennings, vice-president; Dr. G. S. Walker, secretary and treasurer.

Mrs. Haire and Mrs. Hampton served a lunch which was very much enjoyed.

F. M. DOUGLASS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Association opened its fall session with a meeting at the Joplin Y. M. C. A., Tuesday, October 3, 1922, at 8 p. m., the president, Dr. Leaming, in the chair.

The members present: Drs. H. C. Powers, R. M. James, W. H. Gentry, L. C. Chenoweth, J. A. Chenoweth, R. McM. Stormont, H. A. Leaming, C. M. Balsley, S. H. Miller, Wm. H. Mallory, S. A. Grantham, M. O. Coombs, L. B. Clinton, E. E. Moody, J. I. Tyree, R. C. Lowdermilk, Galena, Kan., visitor.

Dr. Lowdermilk reported a case of asthmatic seizures in a child three years old which he believed were due to eating eggs. Following treatment with the antigen of egg the child made a complete recovery. The case was discussed by Drs. Powers and L. C. Chenoweth.

Dr. Stormont reported a case of ptomain poisoning.

Dr. Tyree reported three cases of gastric ulcer; two complained chiefly of an excessive flow of saliva and the third was a recurring ulcer of the duodenum following excision of the first ulcer four years ago.

Committees were appointed to investigate several matters relating to the activities of the Society.

The coming State Association convention to be held in Joplin next May was discussed at length. The local Society is starting plans to make the meeting the most attractive one ever held.

JAMES I. TYREE, M.D., Secretary.

Meeting of October 17

The Jasper County Medical Society held its 19th meeting for the year 1922, Tuesday evening, Octo-

ber 17, at the Joplin Y. M. C. A., the president, Dr. Leaming, in the chair.

Following some case reports by Drs. Henry and Burch, Dr. Stormont read a very interesting paper on diabetes. The paper was discussed by Drs. Burch, Miller and Neff.

Dr. Leroy Simmons, of Sarcoxie, was elected to membership.

Attendance, 20.

Meeting of October 24

The 20th meeting for the year 1922 of the Jasper County Medical Society was held Tuesday evening, October 24, at the Joplin Y. M. C. A., the president, Dr. Leaming, in the chair.

Members present: Drs. Lowdermilk, Clinton, Grantham, S. H. Miller, Neff, Morgan, Shelton, Thornton, Hoshaw, Williams, Snyder, L. C. Chenoweth, Leaming, Ed. James, A. B. Clark, Balsley, J. A. Chenoweth, Alberty, R. M. James, Mallory, Stormont, Burch, Tyree. Visitor, Dr. L. Baxter, of Columbus, Kansas.

Dr. Baxter read a very interesting paper on the actinic ray. The paper was discussed by Drs. Lowdermilk, Clinton, S. H. Miller, Shelton, Grantham and Williams.

JAMES I. TYREE, M.D., Secretary.

RANDOLPH COUNTY MEDICAL SOCIETY

One of the most enjoyable meetings of Randolph County Medical Society was held in the City Hall at Higbee on the evening of October 10, 1922. The meeting was called to order by Dr. S. T. Ragan, president.

The transfer card, from Boone County Medical Society, for Dr. C. B. Lawrence who has recently become a resident of Randolph County, was presented and unanimously accepted. The following committee on legislation was appointed by the president: Drs. G. O. Cuppidge, R. A. Mitchell and G. M. Nichols.

A paper on "Some Practical Points on Differential Diagnosis," by Dr. McCormick, and general discussion constituted the scientific part of the program but the part following, consisting of a delightful luncheon and smoker, called forth more expressions of satisfaction judging by the way all participated.

The following members were present: Drs. R. D. Streeter, J. Maddox, G. O. Cuppidge, R. A. Mitchell, T. S. Fleming, L. A. Bazan, F. L. McCormick, S. T. Ragan, C. B. Lawrence, C. H. Dixon, all of Moberly, and Drs. G. M. Nichols, C. F. Burkhalter and W. S. Winn, of Higbee.

The next meeting will be held in Moberly and will be a Councilor District meeting under the supervision of Dr. Don A. Barnhart, our Councilor. This district is composed of Macon, Monroe and Randolph Counties and it will be a "get together" meeting. An especially prepared program will be announced later.

C. H. DIXON, M.D., Secretary.

ST. FRANCOIS COUNTY MEDICAL SOCIETY

The St. Francois County Medical Society was called to order by the president, Dr. E. E. Whiteside, of Elvins, October 19, at 8 p. m. The following were present: Drs. N. M. Fuller, of Desloge; O. A. Smith and G. L. Watkins, of Farmington; E. Whiteside and G. E. Cecil, of Flat River, and Bradford Massey, Chief of County Health Unit.

The principal discussion of the evening was the need of a county hospital, which with untiring efforts we think will be erected.

Dr. Massey, of Flat River, and Dr. Cronin, of Farmington, were admitted to membership in the Society.

G. E. CECIL, M.D., Secretary.

STODDARD COUNTY MEDICAL SOCIETY

The physicians of Stoddard County met at Bloomfield, September 27, 1922, for the purpose of asking for a separation from the Butler-Stoddard County Medical Society and the reorganization of the Stoddard County Medical Society. Dr. E. J. Goodwin, Secretary of the Missouri State Medical Association, was present and assisted in the organization.

The following physicians were present: Drs. W. C. Dieckman, Frank LaRue, J. L. Craig, C. L. Bennett, of Dexter; J. P. Brandon, W. C. Caldwell, of Essex; T. C. Allen, of Bernie; E. L. Elmore, J. M. Page, of Puxico; John Tribble, E. Phillips, S. S. Davis, of Bloomfield; J. E. Tarpley, of Swinton; E. J. Goodwin, of St. Louis.

The following motions were made, seconded and duly passed: That Bloomfield be made a permanent meeting place and that a meeting shall be held at 1:30 p. m. on the first Wednesday of each month and that five members shall constitute a quorum; that the name of this organization shall be the Stoddard County Medical Society and the dues for the fiscal year shall be \$7.00. The Constitution and By-Laws as prepared by the committee on organization of the American Medical Association was read and a motion was made, seconded and duly passed that they be adopted in full.

The following officers were nominated and elected: President, Dr. E. Phillips; vice president, Dr. J. M. Page; secretary-treasurer, Dr. S. S. Davis; delegate, Dr. Frank LaRue; alternate, Dr. J. L. Craig; board of censors, Drs. E. L. Elmore, J. P. Brandon, C. L. Bennett.

The meeting was presided over by Dr. J. P. Brandon, who was elected temporary chairman, and the minutes of the meeting were recorded by Dr. C. L. Bennett, who was elected temporary secretary.

SAMUEL S. DAVIS, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the office of Dr. J. A. Fuson, Mansfield, November 2, 1922, at 1:30 p. m., the president, Dr. R. M. Norman, presiding. Those present were Drs. R. M. Rogers and J. A. Fuson, of Mansfield; R. A. Ryan and L. T. Van Noy, of Norwood; R. M. Norman and J. L. Gentry, of Ava; A. C. Ames, of Mountain Grove; Julius Frischer, of Kansas City. The minutes of the last meeting were read and approved.

The action of the secretary in sending telegrams to our delegates at the Constitutional Convention urging the adoption of Proposal 192, and in drawing on our treasury to pay this expense of \$1.06, was approved.

Dr. Julius Frischer read a paper on "Prostatic Obstruction," which was much appreciated and was discussed by all present.

Dr. J. A. Fuson read a paper on "Medical Ethics," which all of our members try to make their rule of conduct.

A vote of thanks was extended to Dr. Frischer and he was made an honorary member of our Society.

It was voted to remit our local dues for the coming year and only collect the \$5 each required to send to the State Association.

The rules were suspended and the entire list of officers were re-elected by acclamation.

The next meeting will be held at Mountain Grove the first Thursday in February.

A. C. AMES, M.D., Secretary.

BOOK REVIEWS

CLINICAL DIAGNOSIS. CASE EXAMINATION AND THE ANALYSIS OF SYMPTOMS. By Alfred Martinet, M.D., Paris France, with the collaboration of Drs. Desfosses, G. Laurens, Léon Meunier, Lutier, Saint-Cène, and Terson. Authorized English translation from the third, revised and enlarged edition. By Louis T. de M. Sajous, B.S., M.D., Philadelphia, with 895 text engravings and several full-page color plates. Complete in two royal octavo volumes. Volume 1, Physical and Laboratory Diagnosis. Publishers, F. A. Davis Company, Philadelphia, 1922. Price, two volumes, \$14.00.

The work consists of two volumes written by Alfred Martinet of Paris in collaboration with several others, and translated by Louis T. de M. Sajous, M. D., of Philadelphia. The first volume deals with physical and laboratory diagnosis, while the second volume embraces a consideration of symptoms and their importance in differential diagnosis.

In the first volume Dr. Martinet takes up case study by the combined method of physical examination and clinical laboratory methods. Each section devoted to the system under examination is composed of the pertinent facts relative to the physical examination, closely followed by the laboratory tests useful in diagnosing derangements of that system. The arrangement, while not unique, is nevertheless a happy choice, for it serves to combine in each section important facts, thus rendering it less diverting to the acquisitive mind. It is ideal for both student and practitioner, the information contained being sufficiently lucid and detailed for the former, and properly brief and well classified for the latter in using the work for quick reference.

The discussion of all subjects has been thoroughly cleansed of unnecessary detail, while the author at the same time is careful to stress important points.

The laboratory tests included are those now in common use, but some of them have not been extensively adopted in this country. They, nevertheless, have a definite value and a certain place in a work of this kind. Descriptive matter is augmented by copious illustrations, nothing being spared to enhance the value and completeness of the work.

The second volume, entitled "Analysis of Symptoms," gives a very complete yet concise analysis of the common symptoms met with in diagnostic work. Each symptom is so discussed that the reader in a brief few pages may glean the essential points as referable to differential diagnosis, without wading through a mass of non-essential, impertinent matter.

The discussion is brief, well-ordered, and well illustrated, with the pathologico-physiological explanation outstanding. The author is to be congratulated upon his arrangement and upon the exhaustive, yet not too elaborate, discussion.

His diagrammatic memotechnic tables at the conclusion of each section sum up the foregoing material and are invaluable aids in the rapid perusal of the subject. Tables, diagrams, cuts, and schema

are in abundance, the author not sparing where he feels that these may aid the descriptive matter.

It is well worth the time of every physician to peruse the first two chapters in Volume I. In the first the author makes a plea for a classification of nosology based upon pathological physiology, or disturbed function not manifesting itself by morbid changes in the organ or system. It is a step away from the pathological classification toward a broader concept of symptoms and functional derangements. In his own words: "One of the prevailing major tendencies in the science of diagnosis is indeed to bring together, or, better, to superimpose, or even to substitute for the pathological lesional 'train of thought' the physiological functional concept, which is far more fruitful from the standpoint of therapeutics."

The second chapter on "Mistaken Diagnoses, Their Causes," is wholly productive of humility on the part of the diagnostician.

We feel that this work fills a very definite niche in the literature on diagnosis. The author has planned well and executed most satisfactorily. These are volumes that will be consulted frequently, and we are certain that the better one knows them the more frequently will they be used.

A. M.

THE EVOLUTION OF DISEASE. With a Discussion of the Immune Reactions Occurring in Infectious and Non-Infectious Diseases, A Theory of Immunity, of Anaphylaxis and on Antianaphylaxis. By Prof. J. Danysz, Chef De Service, Institut Pasteur, Paris; translated by Francis M. Rackemann, M.D., assistant in medicine in the Harvard Medical School. Lea & Febiger, Publishers, 1921. Price, \$2.50.

This is a wonderful little book—ultra scientific, condensed but complete. Not a book to be used as a reference work, but to be carefully studied.

In Part I "the various stages of the development of acute infectious diseases" are traced, and in Part II the author presents his theory of immunity, anaphylaxis and antianaphylaxis.

Although the reviewer cannot pass judgment on all the theories presented he recommends this book to the internist for serious study. There is much of real merit presented in a brief space.

E. L. S.

PHYSICAL DIAGNOSIS. By W. D. Rose, M.D., Lecturer on Physical Diagnosis and Associate Professor of Medicine in the University of Arkansas; Visiting Physician Little Rock City Hospital, Baptist Hospital, and St. Vincent's Infirmary, Little Rock, Ark. Third edition, 319 illustrations. St. Louis: C. V. Mosby Co., 1922. 755 pp. Price, \$8.50.

The book gives a very adequate presentation of the methods of physical diagnosis, and a fairly complete correlation of the findings of physical examination with normal and pathological anatomy and physiology. One wishes often throughout the book that this was more exhaustively treated rather than, as too often occurs, for the discussion to get into the classical presentations of clinical conditions.

The short chapter on roentgenology is praiseworthy in that it only endeavors to show what may be learned by the methods and does not encourage either the operation or interpretation of the X-ray by the amateur.

The chapter on electrocardiography, which is a new and contributed chapter, is presented in a very lucid manner in the thirty pages allotted to it, and here again the writer seeks to show the help that may be offered by the method rather than to en-

courage the technical operation of the electrocardiograph by the inexperienced.

The major portions of the book dealing with the thorax and abdomen treat very adequately with their subjects. However, the chapters devoted to the head, neck, and extremities, and to the nervous system are necessarily, in the small space allotted, much abbreviated in the consideration of such extensive subject, and would be found very inadequate for help in any difficult diagnosis.

The illustrations are very helpful. There is a notable frequency of quotations among the illustrations, especially in the chapters considering the abdomen.

J. W. L.

PRINCIPLES AND PRACTICE OF X-RAY TECHNIC FOR DIAGNOSING. By John A. Metzger, M.D., Roentgenologist to the School for Graduates of Medicine, Medical Department, University of California, Southern Division, Los Angeles. With 61 illustrations. The C. V. Mosby Company, St. Louis, 1922. Price, \$2.75.

This small volume is well-titled, simply executed and thoroughly reliable. It provides everything and more than the army manual and without the army red tape. The author thoroughly appreciates the Potter-Bucky diaphragm and encourages its more general use. The book should be constantly at hand for your laboratory technician for reference. Perhaps you are your own technician; if so, you need this book all the more.

The illustrations show the artistic urge of the movie colony near which the author sojourns. Why must we always have posed pictures of perfectly well people for postural preferences? Why not show a shoulder exposure with the patient tenderly grasping the injured forearm and stoutly maintaining his inability to lie down and hold his breath? This would be graphic and instructive. And do we always have a dainty, high-heeled French slipper upon the patient whose knee we are radiographing?

Enough of the persiflage! We really do recommend the book because the author has provided a splendid *vade-mecum* to radiographic technique.

E. H. S.

THE SURGICAL CLINICS OF NORTH AMERICA (issued serially, one number every other month). Volume 11, Number 3 (Chicago Number, June, 1922), 289 pages, with 89 illustrations. Per clinic year (February, 1922, to December, 1922), paper, 12 net; cloth, \$16 net. Philadelphia and London: W. B. Saunders Company.

Beginning as "Murphy's Clinics" and, after the death of that master in surgery, called "Surgical Clinics of Chicago," these "Surgical Clinics of North America" have widened their scope and usefulness. From the work of one man they are now bringing to the profession that which is most important from the "workshops" of many surgeons. This "Chicago Number" keeps pace with the excellence of previous numbers. Selected from the abundant material which is at the disposal of the surgical clinicians of Chicago, the articles of this little volume are of particular value. Even a personal contact with each of these surgeons can hardly be more instructive. Points which never are mentioned in text-books or formal papers find their place in such a publication. Each operator has his peculiar way of handling various situations and problems, and of emphasizing that which seems important to him. Space will not permit discussion of the individual clinics. May it suffice to note that practically all of them show special study in the particular subject treated. In some instances it is the "hobby" of the lecturer and rep-

resents the fruits of long years of devotion to his leaning in certain directions. These "Clinics" are essential to the beginner and occasional surgeon and helpful to any man of experience.

R. E. S.

A TREATISE ON GLAUCOMA. By Robert Henry Elliott, M.D., B.S. (Lond.), F.R.C.S. (Eng.), Lieut.-Colonel I. M. S. (Retired), Ophthalmic Surgeon to the Seamen's Hospital Society, etc. With 213 Illustrations and Frontispiece. Henry Frowde and Hodder & Stoughton, American Branch, 35 West 32d St., New York. Price, \$8.00.

After a short preliminary chapter on anatomy, 60 pages are devoted to intraocular pressure and tension, and another 60 pages to the etiology of glaucoma. These two chapters, together with the first part of the following chapter on diagnosis, treat the subjects at great length and in much detail, including all the uncertainties and surmises, so much so as to produce the bewildering impression of a wilderness of theory and conjecture, with little solid ground of established facts. The emphasis seems to be placed on the unknown, and on the horrors of blindness. In the July number of *THE JOURNAL*, a reviewer calls Fuchs' text-book the "Bible," and De-Schweinitz the "Prayer Book" of Ophthalmology. This portion of Elliot's book then might be called the "Litany of Glaucoma."

To the very important chapter on diagnosis is given 200 pages—200 pages of most thorough, systematic and instructive matter. This chapter deserves the highest praise. Particularly lucid is the section on the visual field, with especial attention to central and paracentral scotomas. The reasons for their occurrence, the methods for their detection, and their significance are well and clearly explained.

The chapters on secondary glaucoma and congenital glaucoma are of great interest, and are only possible from the pen of one of extensive experience and systematic observation.

The medical treatment of glaucoma is sketchy; iridectomy fares somewhat better, with stress on its shortcomings as compared with filtering operations.

The great personal interest in the book is in the chapter on the newer operations, the operations designed to produce filtering scars, because of the importance and vogue of the trephining operation as evolved by the author.

The various forms of sclerotomy and filter producing operations are adequately described, including the Lagrange, Holth, Herbert and Fergus operations, and cyclodialysis. Most space is given to the author's operation of sclero-corneal trephining. This is so well done and so impartially done, that one feels able to form an unbiased opinion of its merits, and to do the operation correctly if skilled in ophthalmic surgery. Most valuable is the part of this chapter on post-operative treatment and the management of complications. The author has evidently encountered all the complications and formed definite opinions as to their causes and the best methods of treatment. The book is indispensable to all who are concerned with the study and treatment of glaucoma.

R. J. C.

PRACTICAL MEDICINE SERIES. Volume VIII. Nervous and Mental Diseases. Edited by Peter Bascoe, M.D., Associate Professor of Nervous and Mental Diseases, Rush Medical College. Series 1921, 249 pages. Chicago: The Year Book Publishers. Copyrighted 1922.

This small and handy volume is again presented for the usage of the medical profession in its usual good form. The editor has given a digest of the

more important literature which could be considered as of value to medical men generally. The abstracts though brief are concise and contain the meat of the paper under reference. Though the volume purports to deal with nervous and mental diseases, some might think there was unfortunate lack of balance in the amount of space allowed these two main groups inasmuch as mental diseases are covered in about one-third of the volume. However, the book well serves the purpose for which it is intended in providing the essentials of progress during the year. The book would be even more valuable if the footnote references to the literature were given more specifically in accordance with bibliographic custom.

F. M. B., Jr.

DISEASES OF INFANCY AND CHILDHOOD, THEIR DIETETIC, HYGIENIC AND MEDICAL TREATMENT. A Text-Book Designed for Practitioners and Students in Medicine. By Louis Fischer, M.D., Attending Physician to the Willard Parker and Riverside Hospitals of New York. Volume I: Infant Feeding and Organic Diseases. Volume II: Infectious Diseases—Cerebral—Orthopedic and Eye, Ear, Skin, etc. Ninth edition. Cloth. Price, \$12. Pp. 1152, with 373 illustrations. Philadelphia: F. A. Davis Company, 1922.

This work appears in two volumes and has about 200 pages more than earlier editions. Some of the original subject matter has been retained, but the work has been largely rearranged and brought up to date. Many of the illustrations are excellent; others do not clearly define the condition described. There are pictures, such as three illustrations of common atomizers found in any drug store, which take up space that the author could fill with more of his excellent photographs, such as the skin reactions and the stools.

Much recent data have been added and the volumes are well indexed.

F. C. N.

THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. By the late Henry Ashby, M.D. (Lond.), F.R.C.P., and the late G. A. Wright, B.A., M.B. (Oxon.), F.R.C.S. Revised by Hugh T. Ashby, B.A., M.D. (Camb.), M.R.C.P. (Lond.), and Charles Roberts, M.B., B.S. (Lond.), F.R.C.S. Sixth Edition. Thoroughly revised and rewritten. London: Henry Frowde and Hodder & Stoughton, The Lancet Building, Bedford Street, Strand, W. C. 2. American Branch, 35 West 32d St., New York, 1922. Price, \$12.50.

One would think this a fairly large contract for a comparatively small book of 723 pages. The American text-books the content to deal with the diseases of children, leaving surgical matters to be dealt with in one or another work on surgery. However, the authors have demonstrated the value of a work of this sort. Of course the surgery is such as is peculiar to infants and children. Correction of deformities, the surgical and orthopedic treatment of caries of the spine, hip, knee, etc. These subjects are handled briefly sensibly and in harmony with the best practice of today.

The major portion of the book deals with the illnesses of children and their treatment, just as does almost any other similar book. It is very well arranged, the symptoms and the diagnosis of the various diseases being exceptionally well given. One of the wholesome items is the great restraint in the use of medicines in many of the simple diseases.

There are certain paragraphs with which most American pediatricists will not agree. Feeding a normal, healthy infant every two hours will not

appeal to most of us. Feeding by calories is brusquely dismissed in one short paragraph. It is quite possible the book is none the worse for that.

Serious objections are the manner of using diphtheria antitoxin—in repeated small doses, and the decided preference for tracheotomy over intubation in diphtheria of the larynx. Nor is there any reference to the use of antitoxin by injection into the vein.

It is rather remarkable to see epidemic meningitis disposed of in two pages in a book of this size, and just *one line* given to Flexner's antimeningococcus serum. The chapters on meningitis are the weakest in the book.

It is gratifying that a careful perusal of the text fails to reveal the word "phylacogen."

P. G. H.

BI-SEXUAL LOVE, THE HOMOSEXUAL NEUROSIS. By Dr. William Stekel (Vienna). Authorized translation by James S. Van Teslaar, M.D. (For sale only to members of the medical profession.) Richard G. Badger, The Gorham Press, Boston, 1922.

The translator expresses his regret that there has not developed in this country a serious attempt to study the problem of sexuality and impart instruction to older practitioners and the oncoming generation of physicians in this important branch of therapy; however, the subject has now been placed upon a solid basis through the application of psychobiologic and genetic methods of approach which places it in the proper sphere of scientific research. Nevertheless, it probably will take considerable time before competent instruction will be made available to the general run of students.

Stekel's works in this field undoubtedly will be utilized more generally in the future as they are now being found important aids for study and guidance. The author handles his subjects in a most fascinating style and those who are permitted to obtain this work (its sale is limited to members of the medical profession) will find a mine of information presented in a simple and readily assimilable form, which if it fails to convince will most certainly stimulate thought.

PRACTICAL MEDICINE SERIES. SKIN AND VENEREAL DISEASES. Edited by Oliver S. Ormsby, M.D., and James Herbert Mitchell, M.D. Series 1921, V. 7. Chicago: Year Book Publishers, 1922; 243 pages. Price, \$1.75.

This little book gives in a collected form abstracts of the more important articles on syphilis, skin and venereal diseases that appeared in the journal literature of 1921. The abstracts are arranged in an orderly sequence according to subject, and are sufficiently full to give the reader a good idea of the contents of the articles. The work is much enhanced in value by the numerous editorial notes of Dr. Ormsby and Dr. Mitchell. For the general practitioner these little books of abstracts must have considerable value as they have been popular for over twenty years.

N. T.

OBSTETRICS FOR NURSES. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School. Sixth edition. Cloth. Price, \$3.00 net. Pp. 525, with 244 illustrations. Philadelphia: W. B. Saunders Company, 1922.

This well-known manual for nurses, which has been on the market since 1904, has so thoroughly established itself as an authority that it scarce needs further commendation.

Written in language which is intelligible to the under graduate nurse, its use may also be found valuable by the practitioner who wants to review his obstetrics. It must appeal to a large constituency. Space is devoted to the subject of Cesarean section and its modifications, and the technic of hospital obstetrics is fully presented since maternity work becomes more a hospital procedure. However, as the majority of births are still in the home, emphasis is placed on this subject.

G. C. M.

NOUVEAU TRAITE DE MEDECINE. Fascicule IV. Maladies Infectieuses (Suite) Et Parasitaires. By G. H. Roger, Fernand Vidal, P. J. Teissier. Masson Et Cie, Editeurs. Libraires De L'Académie De Médecine. 120, Boulevard Saint-Germain. Paris (Vie), 1922.

These volumes complete the discussion of infectious and parasitic diseases, and cover those on cancer and intoxications.

The list of authors in these volumes is practically a catalogue of the best known names in the medical world of France. The material seems complete and lucidly presented. In particular, one finds in these volumes a goodly amount of material on tropical and mycotic diseases with which our American literature is very scantily supplied.

In the fifth volume one finds some 408 pages well illustrated by Roussy and Wolf on the subject of cancer. This presentation of the subject is extremely valuable and helpful inasmuch as it considers the thing from the biologic as well as the medical standpoint.

The intoxications are very thoroughly developed and include everything from Saturnism to Kava poisoning.

The books are bound in board and are not nearly as conveniently put out as the corresponding books in America would be. Nevertheless, we believe that every medical library which claims to be anything should possess this series and those individual physicians who are doing any amount of writing should certainly have the books for reference.

G. H. H.

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE. By J. J. R. Macleod, M.B., Professor of Physiology, University of Toronto, Canada, assisted by Roy G. Pearce, A. C. Redfield, et al. Fourth edition. With 243 illustrations, including 9 plates in colors. St. Louis: C. V. Mosby Company, 1922. Price, \$11.00.

Inasmuch as the chemical basis of medicine is the one in which the greatest progress is being made it is important that up-to-date practitioners have new text-books on the subject as the new discoveries are made. This book meets a need of the practitioner in that it considers these fundamental bases upon which all medical science is built; and, secondly, that it considers them in a language that is perfectly intelligible to the physician.

Its context may be understood from its division into parts. Part I is the physiochemical basis of physiological processes. Part II is the blood and the lymph. Part III is the circulation of the blood. Part IV, respiration. Part V, digestion. Part VI, excretion of urine. Part VII, metabolism. Part VIII, the endocrine organs or ductless glands. Part IX, the central nervous system and the control of muscular activity.

Necessarily, the authors can go into very little detail in the consideration of these basic subjects, yet by giving the fundamental facts they furnish us with material of great value in that it enables

us to interpret the more erudite and complex studies that we find in our medical journals.

Interest is added to this volume by the fact that it describes the discovery and use of "insulin" which is now being developed commercially as an aid in the treatment of diabetes. For it was in Macleod's laboratory that this work was done. We commend the book, therefore, to active practitioners in medicine. G. H. H.

THE TREATMENT OF FRACTURES. With Notes Upon a Few Common Dislocations. By Charles L. Scudder, M.D., Assistant Professor of Surgery at the Harvard Medical School. Ninth Edition, Revised. Octavo volume of 749 pages, with 1,252 illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Polished Buckram, \$8.50.

The ninth edition of Scudder's Treatment of Fractures is a very marked improvement over former editions. It is very well illustrated. The introduction of modern methods of splinting as used in the World War is an invaluable addition. The emphasis placed upon the fact that other tissues than the injured bone must be considered and treated in conjunction with the bone treatment deserves great commendation. From the standpoint of a text-book for teaching the student Dr. Scudder has left out of the book very little that should be there and put in very little that should not be there. The reviewer considers it the best text-book for students and an excellent up-to-date reference book for the graduate. T. G. O.

PAPERS FROM THE MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH AND THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA. 1, 1915-1920. Philadelphia and London: W. B. Saunders Company. Price, \$10.00.

Those who have not kept in touch with the Mayo Foundation will be surprised in reading this book to find how great a degree post-graduate study in medical subjects has been developed. This book is made up of researches done by graduate students for the most part candidates for higher scientific degrees in the medical science. Educators have awakened to the fact that the medical sciences offer objects for study of equal scientific value. The human has in other words attained to the dignity so long occupied by the tadpole as an object of scientific interest and of value. This must be an occasion for rejoicing to all who care for the dignity of medicine as a scientific pursuit. True enough other institutions have done the same work, mostly in a lesser degree however, but never until now has there appeared such a large collection between the covers of one book.

The intrinsic value of the papers is by no means small. Many of the papers are presented in short abstract only. This makes it possible for the medical man to get the essentials of what is being done without the necessity of reading a large amount of technical detail. It is worth the time of any medical man to read these papers because he will gain much information and he will receive a renewed pride in the profession of medicine as a cultural science. J. M. B.

OPERATIVE SURGERY. By J. Shelton Horsley, M.D., F.A.C.S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. With 613 Original Illustrations. C. V. Mosby Co., Publisher, St. Louis, 1921. Price, \$10.00.

It is refreshing to read the type of book Dr. Horsley has written. It is not, as he has stated in the preface, an encyclopedia of operations, but more

nearly a monograph on operative surgery in which is chiefly emphasized the surgery that he has found practical and successful. The most creditable feature of the work is the emphasis placed upon physiological function following operation. He has realized the importance of stressing this phase of surgery in presenting his book to the general surgical profession. This volume is recommended to every progressive surgeon.

T. G. O.

NOUVEAU TRAITE DE MEDECINE. Fascicule II, Maladies Infectieuses (suite). By G. H. Roger-Fernand and Vidal-P. J. Teissier. Massan et Cie, Editeurs. Libraires de l'Académie de Médecine. 120, Boulevard Saint-Germain, Paris (Vie), 1922.

This volume takes up the infectious diseases. Each disease is described with great detail and simplicity. The style is clear and simple. The authors show a great deal of personal experience with the various diseases. The chapter on typhus fever contains many new observations made during the recent epidemic in Europe. This volume would have been much more valuable as a reference book if it contained bibliographies following each disease discussed.

H. S.

THE TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

HAY FEVER TIMOTHY POLLEN EXTRACT-MULFORD.—The liquid is obtained by extracting the proteins from the pollen of timothy. For a discussion of actions, uses and dosage, see the article on Pollen and Epidermal Extracts, Preparations and Biologically Reactive Food Proteins, New and Nonofficial Remedies, 1922, p. 232. This preparation is marketed in packages containing fifteen consecutive doses for a complete treatment and also in packages containing partial treatments only. H. K. Mulford Co., Philadelphia.

PURIFIED DIPHThERIA ANTITOXIN (ANTIDIPHThERIC GLOBULIN).—Concentrated diphtheria antitoxin (New and Nonofficial Remedies, 1922, p. 280) is marketed in syringe containers of 1,000 units and in syringe containers of, respectively, 3,000, 5,000, 10,000 and 20,000 units. E. R. Squibb and Sons, New York.

NORMAL HORSE SERUM.—This product (New and Nonofficial Remedies, 1922, p. 278) is also marketed in packages of one 10 c.c. syringe. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, Oct. 21, 1922, p. 1427).

ALUMINUM COMPOUNDS.—Several aluminum compounds are official, including the ordinary alum. The acetate and acetotartrate of aluminum are used in the form of solutions described in the National Formulary. Aluminum compounds are used for their astringent action. They are not so astringent as the lead salts, but they may exert an irritant and even caustic action when used in the form of concentrated solutions or as "burnt" alum. Aluminum compounds are slightly antiseptic. Proprietary preparations of aluminum in combination with organic acids have been introduced with a view of utilizing the astringent and antiseptic properties of their components.

ALUMNOL.—The aluminum salt of betanaphthol-disulphonic acid. Alumnol is used as a mild antiseptic and, in concentrated solutions, as an irritant

or caustic. It is used for the destruction of the gonococcus in gonorrhea. H. A. Metz Laboratories, Inc., New York.

NOVOCAIN BASE.—Para-amino-benzoxidiethyl-amino-ethane. The base contained in procaine. The action and uses of novocain base are the same as those of procaine (New and Nonofficial Remedies, 1922, p. 36), but it is soluble in fixed oils. H. A. Metz Laboratories, Inc., New York.

NOVOCAIN NITRATE.—A brand of procaine nitrate—N. N. R. (New and Nonofficial Remedies, 1922, p. 37). It has the actions and uses of procaine, but is compatible with silver salts. H. A. Metz Laboratories, Inc., New York.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (0.1L+).—A diphtheria toxin-antitoxin mixture (New and Nonofficial Remedies, 1922, p. 282) containing 0.1 lethal dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three vials, each containing 1 c.c.; also in packages of thirty vials, each containing 1 c.c. Lederle Antitoxin Laboratories, New York.

ACNE VACCINE.—Acne bacillus vaccine (New and Nonofficial Remedies 1922, p. 298) is marketed in packages of four syringes containing respectively 50, 100, 250 and 500 million killed bacilli; in packages of four ampules containing respectively 50, 100, 250 and 500 million killed bacilli (with a syringe); in vials of 5 c.c., 10 c.c. and 20 c.c., each cubic centimeter containing 1,000 million killed bacilli. E. R. Squibb and Sons, New York.

GNOCOCCUS VACCINE.—This product (New and Nonofficial Remedies, 1922, p. 301) is marketed in packages of four syringes containing respectively 100, 250, 500 and 1,000 million killed gonococci; in packages of four ampules containing respectively 100, 250, 500 and 1,000 million killed gonococci (with a syringe); in vials of 5 c.c., 10 c.c., and 20 c.c., each cubic centimeter containing 1,000 million killed gonococci. E. R. Squibb and Sons, New York.

MENINGOCOCCUS VACCINE, CURATIVE.—Meningococcus vaccine (New and Nonofficial Remedies, 1922, p. 302) is marketed in packages of four syringes containing respectively 100, 250, 500 and 1,000 million killed meningococci; in packages of four ampules containing respectively 100, 250, 500 and 1,000 million killed meningococci (with a syringe), and in vials of 5 c.c., 10 c.c. and 20 c.c., each cubic centimeter containing 1,000 million killed meningococci. E. R. Squibb and Sons, New York.

PERTUSSIS VACCINE, CURATIVE.—Pertussis bacillus vaccine (New and Nonofficial Remedies, 1922, p. 303) is marketed in packages of four syringes containing respectively 100, 250, 500 and 1,000 million killed bacilli; in packages of four ampules containing respectively 100, 250, 500 and 1,000 million killed bacilli (with syringe), and in vials of 5 c.c., 10 c.c. and 20 c.c., each cubic centimeter containing 2,000 million killed bacilli. E. R. Squibb and Sons, New York.

PERTUSSIS VACCINE, IMMUNIZING.—Pertussis bacillus vaccine (see New and Nonofficial Remedies, 1922, p. 303) is marketed in packages of three syringes containing respectively 500, 1,000 and 1,000 million killed bacilli, in packages of three ampules containing respectively 500, 1,000 and 1,000 million killed bacilli (with a syringe). E. R. Squibb and Sons, New York.

PNEUMOCOCCUS VACCINE.—This product (New and Nonofficial Remedies, 1922, p. 304) is a suspension of killed pneumococci Types I, II, III and Group IV in equal proportions. Marketed in packages of four syringes containing respectively 100, 250, 500 and 1,000 million killed pneumococci; in packages of four ampules containing respectively 100, 250, 500 and 1,000 million killed pneumococci (with syringe), and in vials of 5 c.c., 10 c.c. and 20 c.c., each cubic centimeter containing 5,000 million killed pneumococci. E. R. Squibb and Sons, New York (*Jour. A. M. A.*, Oct. 28, 1922, p. 1519).

TETANUS ANTITOXIN, PURIFIED.—A tetanus antitoxin, concentrated (New and Non-Official Remedies, 1922, p. 281) that is also marketed in syringe containers of 10,000 units. E. R. Squibb and Sons, New York.

STAPHYLOCOCCUS VACCINE.—This product (New and Non-Official Remedies, 1922, p. 306) is marketed in packages of four syringes containing respectively 100, 250, 500 and 1,000 million killed *Staphylococcus aureus* and *Staphylococcus albus* in equal proportion; in packages of four ampules containing respectively 100, 250, 500 and 1,000 million killed *Staphylococcus aureus* and *albus* in equal proportion (with a syringe); and in vials of 5 c.c., 10 c.c. and 20 c.c., each cubic centimeter containing 5,000 million killed *Staphylococcus aureus* and *Staphylococcus albus* in equal proportion. E. R. Squibb and Sons, New York.

STREPTOCOCCUS VACCINE.—This product (New and Nonofficial Remedies, 1922, p. 308) is marketed in packages of four syringes containing respectively 100, 250, 500 and 1,000 million killed streptococci; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed streptococci (with a syringe and in vials of 5 c.c., 10 c.c., and 20 c.c., each cubic centimeter containing 1,000 million killed streptococci. E. R. Squibb and Sons, New York.

TYPHOID VACCINE.—This product (New and Non-official Remedies, 1922, p. 310) is marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed typhoid bacilli, in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed typhoid bacilli (with a syringe); and in vials of 5 c.c., 10 c.c., and 20 c.c., each cubic centimeter containing 1,000 million killed typhoid bacilli. E. R. Squibb and Sons, New York.

TYPHOID VACCINE, COMBINED, IMMUNIZING.—A typhoid vaccine (New and Nonofficial Remedies, 1922, p. 310) that is marketed in packages of three syringes, one containing 500 million killed typhoid and 375 million each of killed paratyphoid A and paratyphoid B bacilli, and each of the other two syringes containing 1,000 million killed typhoid bacilli and 750 million each of killed paratyphoid A and paratyphoid B bacilli; in packages of three ampules containing, respectively, the same dosages as the three-syringe package (with a syringe); in packages of 30 ampules, hospital size; and in vials of 5 c.c., 10 c.c., and 20 c.c., each cubic centimeter containing 2,500 million killed bacilli. E. R. Squibb and Sons, New York.

STAPHYLO-ACNE VACCINE.—A mixed bacterial vaccine (New and Nonofficial Remedies, 1922, p. 314) that is marketed in packages of four syringes, the first containing a mixture of 50 million each of killed *Staphylococcus albus*, or killed *Staphylococcus aureus* and of killed acne bacilli, the second containing a mixture of 125 million each of killed *Staphylococcus albus*, of killed *Staphylococcus aureus* and of killed

acne bacilli, the third containing a mixture of 250 million each of killed *Staphylococcus albus*, of killed *Staphylococcus aureus* and killed acne bacilli, the fourth containing 500 million each of killed *Staphylococcus albus*, of killed *Staphylococcus aureus* and of killed acne bacilli; in packages of four ampules containing the same dosage as the four-syringe package (with a syringe); and in vials of 5 c.c., 10 c.c., and 20 c.c., each cubic centimeter containing 1,500 million killed bacteria. E. R. Squibb and Sons, New York.

COLON VACCINE.—A colon bacillus vaccine (New and Nonofficial Remedies, 1922, p. 299) that is marketed in packages of four syringes containing, respectively, 100, 250, 500 and 1,000 million killed bacilli; in packages of four ampules containing, respectively, 100, 250, 500 and 1,000 million killed bacilli (with a syringe); and in vials of 5 c.c., 10 c.c., and 20 c.c., each cubic centimeter containing 5,000 million killed bacilli. E. R. Squibb and Sons, New York. (*Jour. A. M. A.*, Nov. 4, 1922, p. 1609.)

BARIUM SULPHATE PURE.—M. C. W.—A brand of barium sulphate for Roentgen-ray work—N. N. R. (See New and Nonofficial Remedies, 1922, p. 62.) Mallinckrodt Chemical Works, St. Louis.

BENZOSOL.—A brand of guaiacol benzoate—N. N. R. (New and Nonofficial Remedies, 1922, p. 92). H. A. Metz Laboratories, Inc., New York.

NORMAL HORSE SERUM.—P. D. & Co.—This product (New and Nonofficial Remedies, 1922, p. 278) is marketed in packages containing one 10 c.c. syringe container (Bio. 50); in packages containing one 10 c.c. rubber-stoppered bulb (Bio. 52), and in packages containing one 30 c.c. rubber-stoppered bulb (Bio. 53). Parke, Davis & Co., Detroit.

RABIES VACCINE (CUMMING).—An antirabic vaccine (New and Nonofficial Remedies, 1922, p. 290). The virus is prepared by dialyzing a 1 per cent. suspension of brain tissues (from a rabbit dying of rabies induced by an injection of fixed virus) against running distilled water until the active virulent virus is destroyed. The treatment is divided into two classes: mild, requiring 14 doses; severe, requiring 21 doses. One dose, 2 c.c., is given daily over a period of either 14 or 21 days. Each package (Bio. 440) consists of seven syringe containers of 2 c.c. each (1 dose). Parke, Davis & Co., Detroit.

SULFARSENOL.—SULPHARSPHENAMINE.—Chemically, sulfarsenol is closely related to neoarsphenamine. It contains from 18 to 20 per cent. of arsenic. The arsenic content of three parts of sulfarsenol is approximately equal to two parts of arsphenamine. The actions, uses and dosage are essentially the same as neoarsphenamine, but it is claimed to have the advantage over neoarsphenamine in that its solutions are more stable and in that it may be administered subcutaneously. Sulfarsenol is marketed in ampules containing, respectively 0.06 gm., 0.12 gm., 0.18 gm., 0.24 gm., 0.30 gm., 0.36 gm., 0.42 gm., 0.48 gm., 0.54 gm., 0.60 gm. Chas. Leich & Co., Evansville, Ind. (*Jour. A. M. A.*, Nov. 18, 1922, p. 1767.)

PROPAGANDA FOR REFORM

AFSAL.—Afsal is being marketed by S. Lewis Summers. It is stated to be "diacetyl methylene disalicylic acid." The product was formerly marketed by the Organic Chemical Manufacturing Co. (S. Lewis Summers, president) as Urasol. Urasol was one of a number of the "Forma-Sol Compounds" marketed by the Organic Chemical Manufacturing Co. and stated to be compounds of methylene-disalicylic acid. Sollmann reported in 1908 in an in-

vestigation made for the Council on Pharmacy and Chemistry that he had been unable to confirm the claims that were made for these compounds. A subsequent examination confirmed Sollmann's findings (*Jour. A. M. A.*, Sept. 7, 1922, p. 1264).

SPÄHLINGER'S TREATMENT FOR TUBERCULOSIS.—Spählinger, according to reports, was a lawyer who abandoned his profession for research work. He appears now to be connected with the Bacterio-Therapeutic Institute, Geneva. According to an article by Spählinger, the treatment utilized either one or both of two therapeutic principles depending on the nature of the infection. In acute cases, passive immunization with special serums is used. In chronic afebrile pulmonary cases, in non-pulmonary, and in cases "predisposed to" tuberculosis, active immunization with special antigens is employed. No definite information in regard to the preparation of the product is given. Reports that the British Red Cross is to purchase the treatment are unconfirmed. Reports that the Rockefeller Institute had made an offer to secure the rights for the product in the United States proved unfounded. The exact nature of the Spählinger treatment does not appear to have been divulged, the treatment is in the experimental stage and the reported results lack confirmation (*Jour. A. M. A.*, Oct. 7, 1922, p. 1264).

RADIOACTIVITY OF WATERS.—Twenty-five years ago various mineral springs and waters were claimed to have therapeutic virtues because of their lithium content. Today we know that the amount of lithium in natural waters is insignificant, and that lithium is of no therapeutic value anyway. At the present time, many mineral waters are exploited because of their asserted content of radium. However, the rationale of the internal administration of radium is being doubted. Also, relative traces of radio-active substances are practically valueless and the Council on Pharmacy and Chemistry will not accept any radium solution for internal use the dosage of which is less than two micrograms each day or any radium emanation generator which yields less than two microcuries emanation each twenty-four hours. The probable value of radioactive mineral waters may be judged when it is known that it would be necessary to consume 2,810 gallons daily of the water yielding the largest quantity of temporary radio activity in order to obtain the minimum therapeutic dose of two microcuries emanation and that the best water available as regards radium content would require the administration of 1,957 gallons per day in order to obtain 2 micrograms of radium (*Jour. A. M. A.*, Oct. 14, 1922, p. 1339).

THE CLINICAL FIELD OF YEAST PREPARATIONS.—In March, 1921, the Council on Pharmacy and Chemistry requested its Committee on Therapeutic Research to determine the advisability of undertaking a clinical study of the usefulness in therapy of yeast preparations. Accordingly the chairman of that committee drew up a provisional plan which proposed to utilize the easily observable phenomena of growth, appetite and laxative effect as cumulative indices of all actions and to record this under a variety of normal and pathologic conditions. The plan was submitted to the committee and to others for an opinion. In consideration of the replies received and the unfavorable results published by A. L. Daniels and by A. F. Hess the chairman of the committee recommended that the study be not inaugurated. The chairman reported that he had come to these conclusions: 1. Apart from the occasional imported cases of beriberi vitamin deficiency is not a recognized or diagnosable clinical entity in this country. 2. With ordinary diet yeast does not have

any effect on growth, even of babies and children. 3. The one effect of yeast that has been definitely established is the laxative effect. This may be useful in chronic constipation but no direct method of study is at present available for determining its advantages or disadvantages in comparison with other laxatives. After considering the recommendations of its Research Committee, the Council for the present decided against an investigation into the problematic usefulness of yeast as a therapeutic agent (*Jour. A. M. A.*, Oct. 14, 1922, p. 1354).

ARSENAURO.—Some ten to twenty years ago, this preparation had considerable vogue. It is believed to be similar in composition to solution of gold and arsenic bromid of the National Formulary. This contains bromid of gold and arsenic acid. Gold preparations were at one time believed to have therapeutic value, particularly as "alternatives." They have proved inefficient and have been discarded (*Jour. A. M. A.*, Oct. 21, 1922, p. 1446).

CLEARO.—This was a "patent medicine" sold by C. E. McCuiston, Dallas, Texas, doing business as "The Clearo Co.," as a cure for tuberculosis, asthma, bronchitis, hay fever, serious throat and lung troubles. An investigation by the post office authorities led to the conclusion that the product was worthless for the purposes claimed and that the Clearo Company was engaged in a scheme for obtaining money through the mails by means of fraud. The Clearo Company has been denied the use of the mails (*Jour. A. M. A.*, Oct. 21, 1922, p. 1445).

A PANCREATIC HORMONE IN DIABETES.—Since the discovery of the important role of the pancreas in carbohydrate metabolism in the body there have been many attempts to supply the missing "regulator" of sugar combustion and attention has naturally been centered on the pancreas in this connection. Significant results have been secured in the Department of Physiology at the University of Toronto by J. J. R. Macleod and his collaborators. An alcoholic extract of pancreas has been prepared which apparently enabled the diabetic animal and man to metabolize sugar better. The investigators are wisely withholding the product from general use until its value is definitely established (*Jour. A. M. A.*, Oct. 21, 1922, p. 1428).

TYPHOID VACCINATION BY MOUTH.—Besredka has proposed vaccination against typhoid by mouth. His vaccine consists of a pill of bile and a tablet containing a mixture of heat-killed typhoid and paratyphoid bacilli. These are taken three mornings in succession. It is for the future to determine whether or not the method has value (*Jour. A. M. A.*, Oct. 21, 1922, p. 1446).

THE REACTIONS OF BOSTON TO THE "REACTIONS" OF ABRAMS.—Abrams gave a clinical demonstration of his methods in the laboratory of one of his disciples in Boston. Abrams refused to submit the method, it is said, to any test offered, but confined himself to demonstrating the presence of lesions the existence of which could be proved only by post-mortem examination. A member of the staff of the *Boston Medical and Surgical Journal*, a man in perfect health, was selected for experiment. By his diagnostic methods Abrams discovered in this healthy individual a streptococcus infection, tuberculosis of the intestinal tract, congenital syphilis and intestinal sarcoma. Otherwise the man was all right. It is understood that the volunteer inconsiderately refused to submit to a post-mortem examination (*Jour. A. M. A.*, Oct. 28, 1922, p. 1524).

SUSTO.—According to the trade package Susto is a "Vitamin Tonic Food in Concentrated Form, Rich in the Vitamins of Rice, Eggs, Milk and Yeast, Notably Rich in Fat Soluble and Water Soluble Vitamins A, B, C, Together with Beef Proteins, Nucleins and Iron." Susto is put on the market by Chester Kent and Company, Boston, better known as the sellers of Vinol. Vinol was essentially an alcoholic tonic, containing unrecorded amounts of iron, manganese peptonates, iron and ammonium citrate, lime and soda glycerophosphate, beef and cod-liver peptone, cascarn and sodium salicylate and 18 per cent. alcohol. Some years back Vinol was advertised as a cod liver preparation without oil. Vinol seems to have been made for Chester Kent and Company by Frederick Stearns and Company, the firm which made Stearns' Wine of Cod Liver Extract with Peptonate of Iron. When alcoholic tonics were no longer good form, Chester Kent and Company employed Philip B. Hawk, Professor of Physiologic Chemistry at Jefferson Medical College, Philadelphia, to "perfect" a product that was sent him as Vinol Powder. Hawk did this; he also furnished the company with clinical reports and experimental data that could be counted on as valuable advertising thunder. Thus was born Susto. Patent medicine exploiters are cognizant of the fact that the public can be more easily humbugged on the food tonic scheme than by any other, particularly so when they can get the active co-operation of men whose scientific training should put them above such things. For one dollar the purchasers will get a few cents worth of food material.—(*Jour. A. M. A.*, October 28, 1922, p. 1538.)

ABRAM'S "OSCILLOCLAST."—This is a piece of electrical apparatus which is said to produce vibrations of varying rate. Its use is based on Abram's theory that "specific drugs possess a like vibratory rate as the diseases for which they are effective." Instead of using a drug one starts the "Oscilloclast" going, moves the indicators to the number corresponding to the vibration rate of the indicated drug and applies the instrument to the sufferer who, it is alleged, then gets the therapeutic action of the drug in question. The "Oscilloclast" is not for sale. It may be leased (for about two hundred dollars) on signing a contract that the instrument will not be opened. Within the past few months Abrams has been making bids for osteopathic patronage. The followers of the cult have not been slow to respond. The lure of the dollar and the bizarre is irresistible. Many of the lessees of the "Oscilloclast" are individuals who for years have lived in what may be called the twilight zone of professionalism where it is difficult to distinguish between the visionary with a fad and the quack or near quack with a scheme. (*Jour. A. M. A.*, Nov. 4, 1922, p. 1626.)

CAROID.—This is a preparation of papain (obtained from papaya). Caroid was first marketed by the American Ferment Co. and later by Mead Johnson & Co. For a considerable time the Council on Pharmacy and Chemistry had Caroid under consideration and in the end rejected the product on account of its variability. Although Caroid was found more active than other preparations of papain, examination showed that the claims for its digestive efficiency were exaggerated. Since the publication of the Council's report in 1914, Mead Johnson & Co. do not seem to have made any propaganda for Caroid. It is now being promoted by the American Ferment Co., but this firm has not requested a consideration of the product by the Council. (*Jour. A. M. A.*, Nov. 4, 1922, p. 1629.)

THE A. M. A. CHEMICAL LABORATORY.—When, some seventeen years ago, the Council on Pharmacy

and Chemistry began its work of turning the light on proprietary medicines its main concern was to let physicians know the composition of many of the proprietary medicines widely advertised in medical journals. At that time the exposure of false or vague and meaningless declarations of identity was considered of basic importance. This fact is shown by the name of the Council and by the appointment at that time of many chemists and pharmacists as members of the Council. This need for work which should bring home to the medical profession the essential secrecy of the drug preparations which they were asked to prescribe led also to the establishment of the A. M. A. Chemical Laboratory. The initial reports of the Council gave the medical profession the first definite statement of many proprietaries then advertised extensively. Though many of these proprietaries were offered to the profession as new chemical discoveries, they were, in fact, simple mixtures of well-known chemicals and their analysis presented little difficulty. As the result of this work of the Council and the Laboratory most promoters of pharmaceutical specialties know better than to invest money in the exploitation of mixtures, the sale of which would be interfered with when there is a disclosure of its composition. But this does not mean that today the composition of all proprietaries is correctly declared. Proprietaries are still to be found which sail under false colors as to their composition.

The work of the Chemical Laboratory, however, has become more difficult. Instead of analyses of mixtures, the Laboratory has to do with new compounds of novel composition which do not have the chemical composition or chemical constitution ascribed to them. A report of the Council on Pharmacy and Chemistry of Galyl is an example of the more difficult work now required of the Laboratory. The Laboratory investigated the product and reached the conclusion that its administration amounted to the giving of arsphenamin (in the form of the sodium compound) with extraneous inorganic material, and thus obviated the need of comparative clinical trials of Galyl with arsphenamin. (*Jour. A. M. A.*, Nov. 11, 1922, p. 1690.)

BIARIUM SULPHATE FOR ROENTGEN-RAY WORK.—A manufacturer of barium sulphate for Roentgen-ray work reported to the Council on Pharmacy and Chemistry that, though its product is free from objectionable impurities and equal to that of other brands on the market, it was confronted with the difficulty that its product, when tested by the standards of New and Nonofficial Remedies, appeared to contain acid-soluble barium salts. It urged that the phosphate test be omitted in that it showed a noticeable phosphate reaction when barium phosphate is totally absent but when a non-poisonous and unobjectionable phosphate (such as calcium phosphate) was present. The manufacturer submitted the tests which he employed, which also included a test for the fineness (fluffiness) of the product.

The A. M. A. Chemical Laboratory deemed the objection to the phosphate test well founded and the proposed revision of the test for soluble barium and the "fluffiness" test worthy of consideration. The laboratory submitted the suggested tests to the firms whose brands of barium sulphate stood accepted for New and Nonofficial Remedies and also to a group of users of barium sulphate. In general the manufacturers agreed to the proposed new tests. Many of the users of barium sulphate held, however, that extreme fineness was not essential. Several objected to the high price charged for some of the very finely divided products. In consideration of the available evidence, the Laboratory recommended

to the Council that the "fluffiness" test be not adopted, that the phosphate test be omitted and recommended in its place a test which will require reasonable freedom from foreign salts along with tests which shall guarantee freedom from water and acid soluble barium salts and freedom from heavy metallic salts. The Council agreed to the recommendation of the Laboratory and directed that the recommended revision of the tests be adopted for New and Nonofficial Remedies 1923. (*Jour. A. M. A.*, Nov. 11, 1922, p. 1687.)

THE PITUITARY HORMONE.—So far the active principle of the pituitary gland has not been isolated. It is possible that the pituitary contains more than one physiologically potent constituent. Perhaps both pressor and depressor compounds are derivable from the gland structures. Abel and Rhuiller have prepared products from the infundibulum which have both vasomotor and oxytocic effect. These investigators believe that if the product is obtained in the pure state, it will be fifty times more active than histamin, and that there is but a single specific hormone in the infundibulum, and that this has both vasomotor and uterus-stimulating properties as well as a powerful effect on the kidneys. The hope of a speedy isolation of this pituitary hormone as a chemical entity is somewhat shattered by the fact that it is unstable in laboratory manipulations. (*Jour. A. M. A.*, Nov. 18, 1922, p. 1770.)

ADAMS' WONDER CAPSULES.—In newspaper advertisements women and girls are urged to call at some local drug store and talk about their ailments with a kind motherly woman of the experience and sympathetic understanding of Mrs. Gene Case. This noted "health advocate" recommends Adams' Wonder Capsules for girls and women who are "troubled with periodical pains, cramps and headache at Menstrual time or who have Neuritis, Neuralgia, Stomach, bowel or bladder pain . . ." The A. M. A. Chemical Laboratory examined Adams' Wonder Capsules and found that the capsules contained the recently introduced drug, benzyl succinate (*Jour. A. M. A.*, Nov. 25, 1922, p. 1876).

COMMERCIAL VITAMIN PREPARATIONS.—No student of the subject of vitamins can fail to recognize the ridiculousness of recent attempts to supply alleged vitamin-bearing preparations as cure-alls. It is doubtful if any latent, not to say evident, avitaminosis is prevalent in this country. Nevertheless, preparations sold to supply this alleged need of vitamins should at least not be fraudulent. E. P. Bailey of the Connecticut Experiment Station has determined the potency of some commercial vitamin preparations as compared with that of dried brewers' yeast. The report stated that apparently many manufacturers are not convinced of the efficiency of their vitamin preparations and, therefore, have added various medicaments of established reputation in therapeutics for good measure and to ensure a reaction of some description. Bailey compared the potency of the products on the reasonable assumption that a preparation which in a 100 mg. dose does not exhibit the potency shown by 100 mg. of a good grade of dry brewers' yeast employed under comparable conditions does not justify a claim of superior therapeutic value as a source of water-soluble B vitamin. On this basis, nearly half of the advertised products failed. Others showed only inferior content of vitamin. A few of the products equalled good brewery yeast in potency and only two or three products among nearly two dozen examined showed any superiority of "concentration" over ordinary yeast. (*Jour. A. M. A.*, Nov. 25, 1922, p. 1846.)

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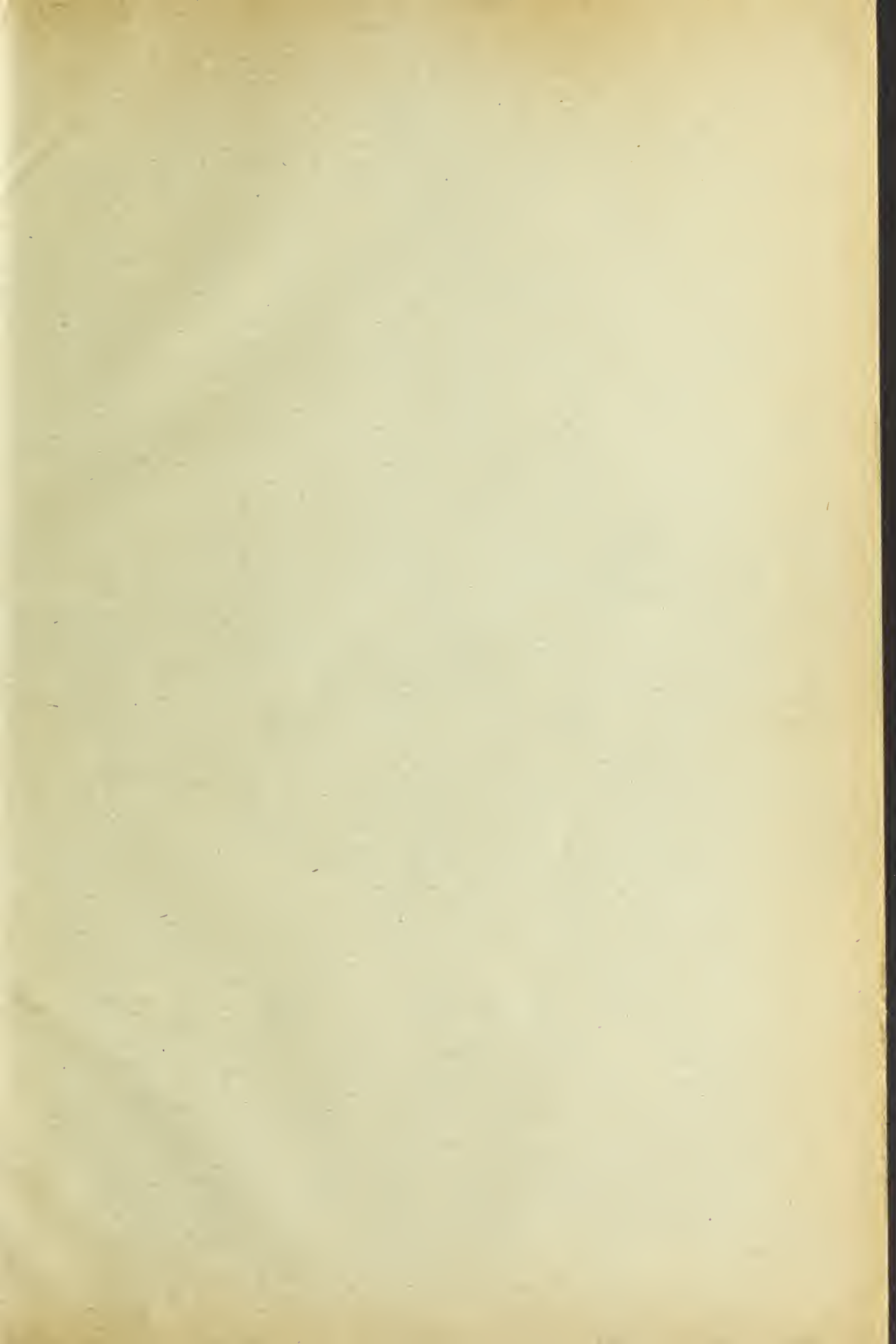
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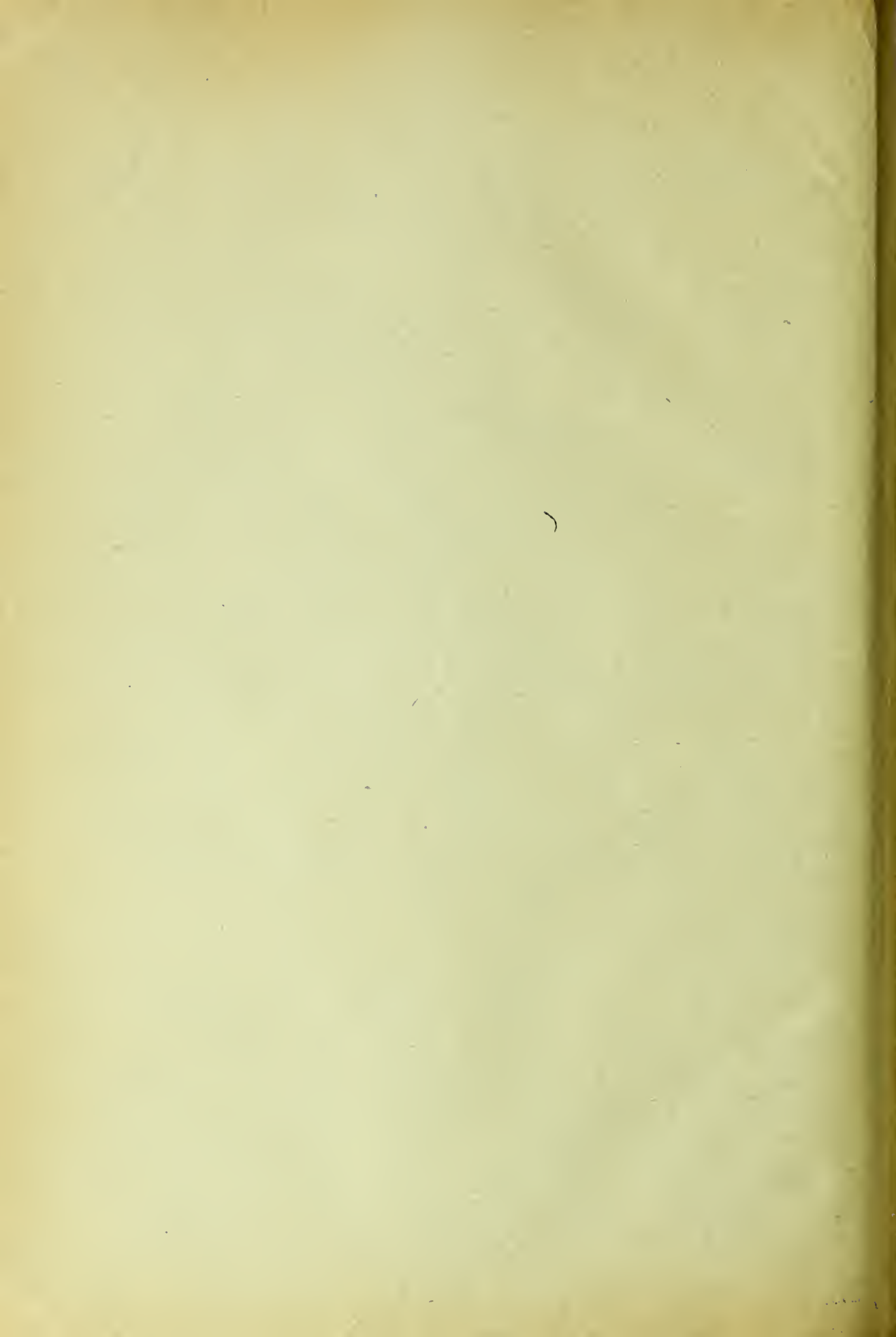
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